137 found, though very seldom, on the northern coast of the Okhotsk Sea; however, I never observed that tree in the region of Gishiga and Penshina Bays.

Of the deciduous trees there are the following species, — three kinds of birch (*Betula alba* L., *B. Ermanii*, and *B. nana*), the fragrant poplar (*Populus suaveola* Fisch.), the aspen (*Populus tremula* L.), and two kinds of alder (*Alnus incana* Wild. and *Alnaster fruticosus* Ledb.). In addition to these species of trees, there are to be found in the river-valleys a few varieties of willows, which frequently reach quite a luxurious development and height, having thick, tree-like trunks.

● [313] While in all other parts of Siberia, particularly in the north, the coniferous trees preponderate over the deciduous trees, we meet here mainly the above-mentioned deciduous trees, which furnish less durable material for building and manufacturing purposes, and which, when used for fuel, do not produce as much heat as do the coniferous trees.

In the absence of other species of coniferous trees, except the abovenamed *Larix Dahurica* and *Pinus pumila*, — such as the Siberian spruce, the pine, the two species of fir, *Picea obovata* Ledb. and *Picea Ajanensis* Fisch., which are represented in the southern region of the Okhotsk Sea,[1] — the Koryak territory (namely, the northern part of the Okhotsk Sea and northern Kamchatka) does not differ from the arctic strip of Siberia west of the Stanovoi Ridge. In the Yakut Province the northern spruce, so characteristic of the woods of the southwestern parts of eastern Siberia, disappears north of Olekminsk, and the Verkhoyansk Ridge forms the northern limit, which the pine and fir do not cross. East of the Stanovoi Ridge the spruce disappears near the Uda River, and the pine and the fir reach to the north as far only as Okhotsk. In Kamchatka the Siberian spruce (*Abies Siberica* Ledb.) and the fir (*Picea Ajanensis* Fisch.) are to be found in the extreme southern part only, along the Kamchatka River and in Kronotzki Bay.[2]

In the distribution of the larch and of the dwarf cedar the Koryak territory differs materially from the arctic region of Siberia west of the Stanovoi Ridge. There the larch (*Larix Dahurica* Turcz) is the tree that forms the northern limit of woods, — like the American fir of North America, — and also reaches highest up on the mountains; there we find the poplar and the aspen only in the river-valleys far to the south of the northern tundra; and in a similar manner the stone-pine or creeping cedar (*Pinus pumila* Pall.) covers the slopes of mountains at the source or at the middle course of the rivers of the Yana-Kolymsk region, without extending far northward. Here, however, in the Koryak territory, the deciduous varieties, the poplar and the aspen, are the trees found to form the limits of arboreal growth (the southeast-

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[1] See Slunin, p. 269. According to Korshinsky, there are the varieties *Picea excels.* Link and *Picea Ajanensis* Fisch., l. c., p. 46).

[2] See Krasheninnikoff, I, p. 44; Slunin, I, p. 306; Korshinsky, p. 46, map; Ditmar, p. 765.

137 the height of about 540 metres; while the larch reaches as high as 585 metres.[1] Travellers who have visited northeastern Siberia usually describe the stone-pine as a low, creeping shrub. Slunin says[2] that the stone-pine does not reach more than three feet in height. In most cases this is perfectly true; but on the Taigonos Ridge and on the elevated right bank of the Paren River we saw stone-pines six and seven metres high with a trunk-diameter of forty centimetres, and over. In some places these trees actually formed a dense forest. Sitting on our horses, we could reach out with our hands and pull down the cones filled with nuts, but from the lower branches only. Hence the term "creeping" or "dwarf" cedar could hardly be applied to those particular specimens of the stone-pine.

It may be said, in general, that the territory of the Koryak, especially the inhabited places near the seashore or the tundra, are scantily supplied with trees. Vast forests — deciduous, or coniferous mixed with deciduous varieties — are to be found, as we have seen, on the eastern slopes and branches of the Stanovoi Ridge. Farther east, the forests are confined to river-valleys, and some groves may be found on mountain-slopes and hills. But the forests become still scarcer as we approach Bering Sea. East of the Gishiga, the spaces between the river-valleys are either treeless tundras with a few thin shrubs of willow, alder, Erman birch, mountain-ash, blackberry, and hard carices scattered here and there, or mountains whose slopes are overgrown with dwarf cedar.

824 [233] Thus the western slope of the Taigonos Ridge, the Parapol Valley (which passes in the north into a tundra plain), and the elevated tundra of the Palpal plateau-land, constitute more or less vast tundras covered with moss, and are suitable for reindeer-breeding. The mouths of the rivers and the rocky seashore, where the Maritime Koryak live, are covered with grass, among which there are some gramineous varieties, particularly the *Elymus mollis* Trin., which plays an important part in the Koryak household, and which sometimes reaches the height of a man. Here on the littoral strip we observe a few varieties of sedge-grass, which is used in sacrificial ceremonies, the edible willow-herb (*Epilobium angustifolium*), two varieties of nettle (*Urtica dioica* L. and *Urtica angustifolia* Lebd.), which are used for making thread for plaiting sacks, bags, and nets. For other useful plants the reader is referred to Chapter VIII and X.

3B The lack of woods at the river-mouths is compensated for by the drift-wood carried down from the upper and middle course of the rivers during high water in spring. In some places logs are piled up several feet high on the banks of the rivers. These are mostly varieties of deciduous trees, — poplars and aspens. This timber is not very durable for building-purposes. Boats hollowed out of a poplar-tree will last only about three years. In like manner the poplar-logs used for poles in underground houses have to be replaced by new ones every few years; while among the Yukaghir on the Kolyma River, who use larch (which grows there in profusion) for building, I saw log-cabins and storehouses built a hundred years ago, the logs of which were still perfectly solid.

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[1] It is of interest to add, in connection with this, Slunin's description (I, p. 194) of the eastern slope of the Kamchatka Ridge, between the Karagha and Dranka Rivers, from the coast-line to the summits. He says, "First there is the rolling, wet, treeless tundra, the tundra of the reindeer; a little higher follows a wide strip of stone-pine tundra; still higher up, the mountain-slopes are thinly overgrown with Erman birch, the mountain-summits are sloping and treeless". From this description we draw the conclusion that in that region *Betula Ermanii* forms the vertical limit of arboreal growth on mountains.

[2] See Slunin, I, p. 306.

At the mouth of the Nayakhan, Gishiga, and Paren Rivers, and partly of the Penshina River, we found among the driftwood a small quantity of larch, but farther to the east it is no longer found. According to the natives, the larch may be found at the upper course of the Penshina River, which is the longest of the rivers of the Koryak territory. Larches carried away by the rising of the water in spring are often thrown out on the banks long before they reach the mouth of the river.

The agents of the Russian-American Company, which was to build a telegraph-line,[1] used to cut down for telegraph-poles, along Penshina River, near the place where the Oklan empties into it, only poplar and aspen trees. The Koryak of Alutor have to be content with slender deciduous trees for their buildings; while the Kerek have no timber at all, the short rivers of their country flowing along absolutely treeless banks. Neither can they burn their dead (see Part I, p. 104); and their underground houses are made of rods and fragments of wood covered with earth and snow (see Chapter IV).

Mr. Kennan's opinion, that the Koryak build their houses of driftwood brought in by the sea, is erroneous. The sea washes very little driftwood to the shores, which are too steep and rocky, at least in the bays of the Okhotsk Sea, to permit any driftwood to accumulate upon them. When I went from the mouth of the Gishiga to that of the Nayakhan in a boat (about one hundred miles), I saw very little driftwood on the shore. In the little bays where we stopped to rest or to seek shelter from inclement weather, we found a sufficient quantity for a wood-pile to make a fire, but not enough for buildings. Besides, the logs were so broken and shattered, that they could hardly be used in a building.

The driftwood which the Koryak use for building-purposes and for fuel is found by them on the river-banks. The timber thrown out by the currents forms, in some places, piles a few metres in height. The driftwood is carried

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[1] Kennan mentions that the larch is to be found on Penshina River at the place where the agents of the Company felled trees for telegraph-poles, but Maydell's information (I, pp. 230, 575; II, pp. 245, 247) on this subject is more reliable. On his way from Markova to Gishiginsk he saw a few sporadic, crooked larches along Penshina River, only near the Penshinsk settlement; then along Gishiga River up to the point where the Black (Черная) River empties into it, he met with no more larches. During my trip from Kamenskoye on the Palpal, I turned off from Penshina River to the right, without reaching Penshinsk. On my way I noticed in the river-valleys only poplar and aspen trees, which on the Penshina River can be found almost at its very mouth.

313 off from the heads of the rivers in the spring, when the ice breaks up, by the strong current. The ice at the upper course of the river presses in its movement on the ice farther down the course, which has not yet broken up, and forms ice-packs, which raise considerably the level of the water, and widen the river-bed. When the stationary ice is unable to withstand the pressure longer, it breaks with a crash; the ice-floes uproot the trees growing on the banks, and they are washed away by the rapid current, and thrown out on the bank somewhere below, after the river has assumed its former level.

It often happens that the ice-floes will tear from the bank a piece of solid earth with the trees growing on it, and carry it off to the sea. I had an opportunity to observe such floating islands at the time when the ice was breaking up on the Kolyma River. Such floating piles are carried from place to place by the ice-floes; so that, at the mouth of the river, one can find trunks which have been travelling for several years from the head of the river to its mouth.

825 FAUNA. — From an ethnographical standpoint we are interested in only those species of animals which bear some relation to human activity. With reference to those we shall speak at greater detail in the chapters on domestic animals and the trades. We will confine ourselves here to a few general remarks. The land-mammal fauna are represented by a small number of species.

Slunin enumerates[1] forty-three species of land-mammals in the Okhotsk-Kamchatka region; but from this number those species are to be excluded which are to be found in the southern part of the Okhotsk region, and not in the Koryak territory, such as *Meles taxus* Sch., *Mustella Siberica* Pall., *Canis alpinus* Pall., *Cervus alces* L., *Cervus capreolis* L., *Moschus Moschiferos*.

Of the sea-mammals, Slunin enumerates[2] twenty-three species; but in this number are included *Rutina borealis* Stell., which is extinct, and *Enchydris marina* Schr., which is not to be found at present in the Koryak seas. Out of the nine varieties of whales enumerated by Slunin, perhaps four are to be met with at present.

According to Professor Allen,[3] the mammal fauna of eastern Siberia, including the Koryak territory from which the zoölogical collection for the American Museum was mainly obtained by the Jesup Expedition, "so far as genera are concerned, consists of exclusively holarctic types, represented in both arctic America and in Eurasia, but in more or less differentiated forms on the two continental areas. A close relationship between the forms of boreal mammals inhabiting the two continents is beyond question, — a relationship so intimate that it could only have been brought about by a former land bridge connecting the two areas."

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[1] Slunin, II. pp. 84–86.

[2] Ibid., II, p. 86.

[3] Allen, Report on the Mammals collected in Northeastern Siberia by the Jesup North Pacific Expedition (Bulletin American Museum of Natural History, Vol. XIX, New York, 1903), p. 182.

030 yaya'ñı. It is an underground, or rather semi-underground, solidly built,
342 permanent dwelling-place. It is of wood, mainly of poplar or aspen, which grows to a considerable height even along the lower courses of the rivers of
313 the Koryak territory. The Koryak float the timber down in summer to the mouths of the rivers; and sometimes they use driftwood. Driftwood carried down by the current from the river-heads may be found mountain-high in the bays and at the mouths of the rivers.

342 The dwellings vary in size according to the number of inhabitants. Small houses occupied by a family of from five to eight persons may be found
571 frequently. From excavations undertaken by me on the sites of ancient
174 settlements in Gishiga Bay, it appears that in olden times the underground houses were more spacious than those of the present time. Families separated more rarely, and all relatives used to live together. The average number of occupants of one house at present is from six to thirteen. Out of 110 underground houses on the shores of Penshina Bay, of which I took a census, in only one (in the Paren settlement) did I find twenty-one persons, and they comprised two families. According to tales of olden times, there were formerly underground houses occupied by as many as forty persons. Among the Kerek we still find twenty-five persons in one house.[1] A house in Mikino (Plate xx) inhabited by fifteen people was found to be 15 metres long (not including the entrance-room), 12 metres wide, and 7 metres high. Such a house is somewhat larger than the average present-day underground house; and those but half as large, or even smaller, may often be found.

342 In order to build an underground house, a circular hole from 1 to 1.5 metres deep is dug, in which the walls are put up in the form of an octagon. The octagon is not equilateral. The sides *a* (Fig. 60) are longer than *b;* and the sides *c* are half as long as *b*. Eight poles (*P*) about as long as the height of a man are driven into the ground at the eight corners. Between the poles two vertical rows of split logs, or large poles, or round stakes, are driven into the ground, and the spaces between them are filled in with dry grass. The tops of the eight outside corner poles (*P*) are notched, and

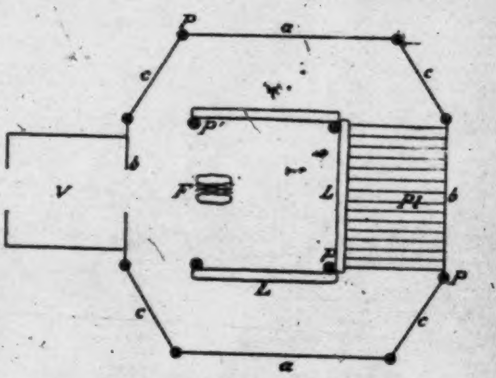

Fig. 60. Plan of Underground House.

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[1] See p. 440

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[137]

When the fire is not burning in the house, the entrance-room door is closed and the opening on its roof is stopped up by a plug plaited of the stems of *Elymus mollis*. When the fire is started, the plug is removed from outside, placed upon the roof of the entrance-room, and the door leading from the latter into the house is opened. Thus a current of cold air forces the smoke upward into the roof-hole; but, since the opening is not directly over the hearth, the smoke strikes the ceiling, and spreads over the upper part of the house. When sitting on the floor, it is possible to remain in an atmosphere which is not charged with smoke. For instance, I could easily take notes when sitting on a log; but when I stood erect, taking anthropometrical measurements, while the fire was burning, my eyes would begin to water. During very violent or irregular winds, a return-draught or a changing draught is formed, and the house becomes completely filled with smoke.

[313]

In the fall the Koryak chop driftwood into thin billets, and put them upon the roof around the funnel, except on that side by which the people ascend to the roof. This is done in order to have handy a supply of wood during severe snow-storms, which often rage for several days in succession, when it is utterly impossible to get out of the house. Of course, in good weather the supply of wood is sometimes renewed in winter. The wood is split into small bits to secure a fire quickly.

When the fire is first started and the entrance-room door is opened for the draught, the cold air strikes the feet, and the house is quite cold; but after the wood has burned out and the draught is shut off, the house begins to grow warm. It gets very warm when only red coals are left on the hearth and the smoke-opening is covered up. The temperature sometimes reaches 20° Centigrade. When the entrance-opening is covered up, the heat remains for a considerable time. During the night the house gets very cold, and the temperature in the morning is often below zero. Thus the temperature drops between the times when the fire is made. To save fuel, the fire is not made often, only two or three times during the day. It is made invariably in the morning directly after getting up, and in the evening, before going to bed, — at the time of the two main meals. During the day, fire is sometimes made in order to prepare tea, or if company should come.

The Maritime Koryak dwelling, compared with the tent of the Reindeer Koryak, provides the people with good shelter from frosts and winds. I think, therefore, that this type of Arctic dwelling is more ancient than the tent, which must have appeared in the far northeast of Asia together with the domesticated reindeer.

The cover used for shutting the roof-hole is made of boards tied to two cross-pieces by means of thongs drawn through holes. The cover is somewhat wider than the square opening of the entrance. A half-circular section is cut out at the side for the ladder to pass through, and thus the entire opening

means of which a heavy stone anchor is attached to the lower corner of the 226
net. After the net has been pushed into the water, the pole is pulled back
and the shore end of the long top line from which the net is suspended is
tied to it. Some fishermen tie this end to a stake driven into the bank of
the river. The stone anchor is called čaqa'gın ("ground stone"); and the net,
ḷoḷai'pañın, which means "into the eyes enters [the fish]." This name points
to the casting of the net, because the fish becomes entangled in its meshes.

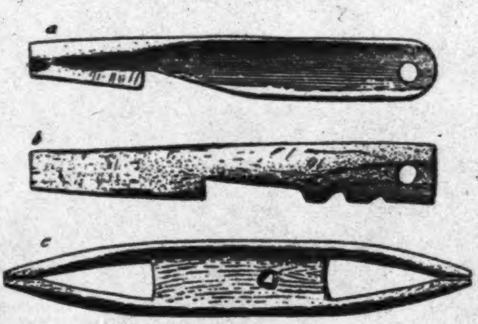


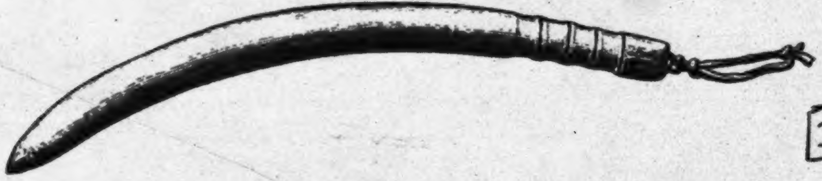
Fig. 71, a ([illegible]), b ([illegible]), Net-Measures; c, Netting-Needle.
¼ nat. size.

The ḷoḷai'pañın nets are set
up along the seacoast as well
as in rivers, in the latter case
in quiet spots.

Measures for making this 286
kind of net, — one of bone
of whale, the other of the leg-
bone of the wild reindeer, — 804
and a wooden netting-needle,
are shown in Fig. 71. [412]

For catching the salveline
and grayling, nets of the same 286
type, made of nettle-thread, but
with meshes of smaller size, 226
with sinkers made of whale-
vertebræ and with wooden floats, are set in the rivers. The Reindeer Koryak, [462]
who fish the salveline and grayling in summer in the tributaries of the larger
mountain-streams, make their nets of sinew-thread, or buy nets made of
nettle-thread from the Maritime Koryak, whose women are experts in nettle-
working.

The Palpal Reindeer Koryak, who fish dog-salmon, humpback salmon, 226
salveline, and rarely chawicha, in the Opuka, Po'qač, and Qayılın Rivers 237



[313]

Fig. 72 ([illegible]). Fish-Club. Length, 45 cm.

every summer, make nets principally of sinew-thread. The club for stunning
the fish (Fig. 72) is usually made of heavy stone-pine wood.

Fig. 73 represents a fyke for salveline, with hoops. It is netted of 226
nettle-thread. It is placed in shallow and swift places in the river. For this 286

among the Reindeer Koryak, stone lamps have gone out of use, just as among the 354
Chukchee. They are replaced by round iron frying-pans without handles, 177
which are imported by Russian merchants. The Maritime Koryak relate that [172
in olden times they also made clay lamps (sä'yek, "earthen or clay lamp:" from sä, "earth or clay;" and ɛ'ek, "lamp") such as are still used by the Chukchee and Eskimo; but among the finds made in excavating ancient underground houses, I did not come across a single clay lamp. In one house I found a lamp made of a whale-vertebra (yu'ñıtemɛ'ek, i. e., "of bone of whale lamp"). It is represented in Fig. 100.

The lamp of the Maritime Koryak serves for lighting exclusively. Wood is used for heating and cooking. The hearth has been described before.[1] 313
Driftwood is cut in summer and autumn for use as fuel. The wood is split into thin billets 50 cm. or 75 cm. long, which catch fire quickly and do not smoke much. It is stored away on the roof of the house.[2] The fire is started twice every day, — in the morning, on rising; and in the evening, before going to bed, — at the time of the two principal meals. 512 372
The morning fire also warms the house for the day, the evening fire for the night. In the middle of the day the fire is rarely started. In general, the sedentary Koryak are saving of their fuel, even in settlements where there is no lack of wood. If guests arrive during the day, a fire is made to make tea and to warm the house.

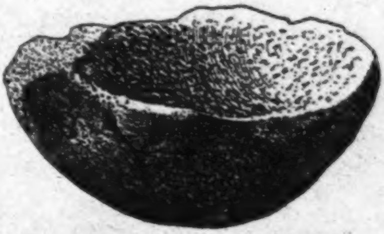


Fig. 100 ([illegible]). Lamp made of the Vertebra of a Whale. Length, 14 cm.

To a certain degree, the lamp of the Reindeer Koryak heats the sleeping- 252
tent in which it burns; but food and tea are prepared on the hearth, in the
outer tent.[3] I have never seen food heated over the lamp in the sleeping- 354
tent. Tea and boiled food are served by the women in the sleeping-tent. -
This, more than the lamp, aids in heating the sleeping-room. Over the lamp, however, wet footwear and mittens are hung to dry; but generally the drying of wet clothes is done in front of the hearth in the outer tent, or by freezing them out of doors, beating off the ice, and then warming them by the fire.

Properly speaking, the Koryak have no furniture whatever. The favorite 352
position is sitting on the ground or on skins, with legs either crossed Turkish
fashion or stretched out, or crouching. In the houses of the Maritime Koryak, 516
the low thresholds which divide the sleeping-places from the middle part of the house are always used as seats; and in the outer tents of the Reindeer Koryak the sledges, which are brought in, and on which lie the bags of provisions, are utilized for this purpose.

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[1] See p. 458.

[2] See p. 458.

[3] See p. 456.

271 skin pails. The Maritime Koryak carry a supply of fresh water when hunting
in their skin boats. In order to avoid the necessity of melting snow and ice,
in winter, water is generally taken from ice-holes. All the settlements of the
361 Maritime Koryak are situated on the banks or at the mouths of rivers. The
312 Reindeer Koryak, too, place their tents in river valleys. Plate xxx, Fig. 1,
represents an evening scene by an ice-hole in the village Big Itkana, where
girls and boys come with buckets to fetch water for the
415 night. The water is poured into the bucket with a
wooden scoop. Water-buckets are made of strong thong-
281 seal skin or of aspen or poplar wood. Fig. 104 shows
a skin bucket. Among the Eskimo are found buckets of
●[313] the same type, made of seal-skin and sewed together
with sinew-thread.[1] They are carried in a different man-
481 ner however. The Eskimo bucket has a handle made of
a strip of leather, like a regular bucket-handle, while the
171 Koryak bucket has two loops sewed on near the mouth.
To these loops are tied the ends of a broad seal-skin
carrying-strap, which is passed over the forehead, the
bucket resting on the back, — a method of carrying
burdens employed by many Indian tribes.

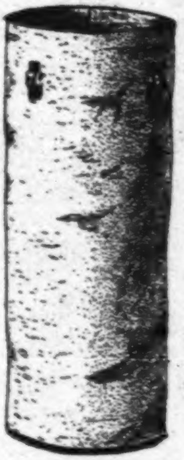

Fig. 104 ([illegible]). Skin Bucket.

322 The thick wooden bucket is also cylindrical. The
material is supplied by a part of a straight and solid
415 trunk of an aspen or poplar tree, which is hollowed out
by means of an adze, and finished with a simple knife.
The wooden bottom is inserted from above. Wooden
buckets are carried by women in the same way as seal-skin buckets (see
Plate xxxv, Fig. 2).

415 The wooden bucket is used for many purposes: when hunting sea-mam-
mals, it serves as a receptacle for the harpoon-heads; in the house, seal-oil
is kept in it; berries are also kept in both wooden and skin buckets; soup
for feeding dogs is carried out of the house in wooden buckets.

The material for spoons and ladles is furnished by the antlers of the
[237] reindeer and the horns of the mountain-sheep. Some are made of wood.
Broth is sipped from deep ladles; thick porridge or gruel is eaten with spoons:
[264] therefore spoons are shallow (Fig. 105, *a*). Bone teaspoons (Fig. 105, *b*) are
[556] made in imitation of imported metal spoons. Wealthy Reindeer Koryak pur-
chase metal table-spoons; some of them even have silver spoons.

Wooden plates, dishes, elongated platters and trays, and wooden and bone
dippers, are of the same type as those of the Chukchee,[2] and I shall not

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[1] See, for example, Kroeber, The Eskimo of Smith Sound, Fig. 31, p. 288; and Boas, Baffin-Land Eskimo, Fig. 142, p. 99.

[2] See Bogoras, The Chukchee, Vol. VII of this series, p. 18[illegible].

415 dwell on their description. Among the wealthy Koryak, imported earthenware or enamelled iron plates may be found.

222 415 Fig. 106 represents a small wooden bucket with a lid, for picking berries. It is hollowed out in the same way as the large water-buckets, but it is furnished with two alder hoops, a lid, and a carrying-strap.

415 514 ● [313] The chamber-vessel (Fig. 107) is an indispensable part of the household goods. The Koryak do not go out of doors at night to void urine, while children even go to stool indoors. The chamber-vessel is hollowed out of an aspen or poplar tree. It is usually made with the brim bent inward to prevent the contents from spilling when the vessel is carried up the ladder of the [356] underground house. The Reindeer Koryak keep it in the corner of the inner sleeping-tent, and its shape prevents its being upset by sleepers. If the vessel is full, the mistress raises the edge of the front side of the tent and pours the contents out into the outer tent. In the morning the women carry it out of doors and pour the urine on the snow, which then attracts the reindeer.[1] Instead of

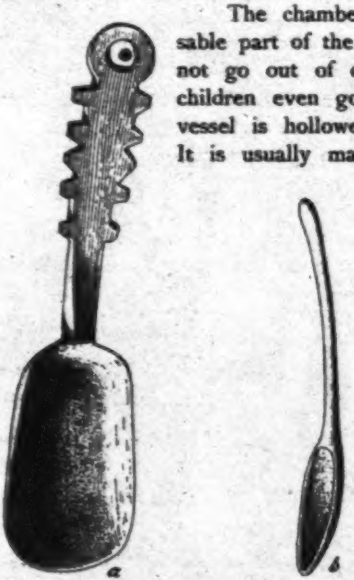

Fig. 105, a ([illegible]), Spoon made of Horn of Mountain-Sheep (Length, 20 cm.); b ([illegible]), Bone Teaspoon (length, 15 cm.).

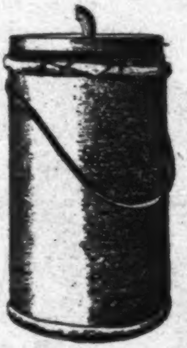

Fig 106 ([illegible]). Wooden Bucket Height, 26 cm.

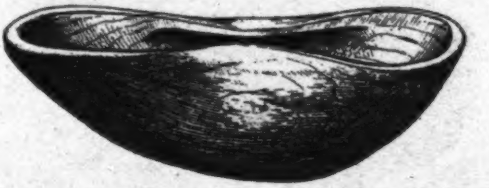

Fig 107 ([illegible]). Chamber-Vessel. Length 59 cm.

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[1] See p. 483.

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314 **FOREST PRODUCTS**--exploitation of forests and other uncultivated areas for products other than timber or food (e.g., gums and resins, rubber, vegetable oils, dyestuffs, medicines, bark, textile fibers, peat); intermediate processing (e.g., refining of palm oil or rubber, production of charcoal); organization of labor and production; etc. See also:

Chemical industries	38	Materia medica	278
Collecting of edible materials	222	Ethnobotany	824

782 along the bank of the Paren River were stakes driven into the snow, with dogs hanging on them, their muzzles pointing upward and the ventral side of the body facing east. In the light of the spring sun, this long row of dog-sacrifices offered a queer and sad sight. Part of this row is represented on Plate VIII, Fig. 2. I found out that the greater part of the dogs had been killed by the drivers of the sledges which I had hired, in gratitude for their safe return from the Russian settlement Gishiginsk, and to guard their village against the spirit of measles, which a year previous had come to them from that little town. Since every driver charged me but six rubles[1] for the drive to Gishiga, the sacrifice cost him more than he had earned.

Of course, from their own point of view, the Koryak have just as much right to sacrifice their dogs for the sake of their own welfare as we have to kill cattle to support our existence; but I never felt so sad on account of human delusions as when, approaching the settlement, I suddenly saw several dozen stakes with needlessly killed animals hung to them.

Only in the village of Big Itkana had I an opportunity to witness the offering of bloody sacrifices to the kalaks representing guardians of the settlement (see Fig. 4 p. 37; also Plate IX, Fig. 1).

779 Sacrifices offered to the sacred hills and rocks (apa'pel, "grandfathers") — which are regarded as guardians of roads, and protectors
782 of hunting — are placed on their summits or slopes. These may be dogs, or antlers of sacrificed reindeer. Plate XI, Fig. 2, (opp. p. 96), represents the sacred hill, situated on the seashore, close to the settlement of Mikino, in the direction of Kamenskoye. One of my drivers told me that this "grandfather" was very favorable to him. Once, when passing by, he had thrown a puppy to him, and on his way back he was met by a gray fox which was running to him, and which he killed with a stick.

782
314 **Bloodless Sacrifices.** — Bloodless sacrifices in the form of sacrificial grass, berries, blubber, meat, tobacco, tea, sugar, and other edibles, also of ornaments, are made to the fire, to the "owners," to the dead, and to the kalak-idols. Only the guardian of the settlement sometimes receives a dog-sacrifice. Besides this, the antlers of wild reindeer are piled up in front
[321] of it, since they are also regarded as sacrificial offerings (see Plate XII, Fig. 1).[2]

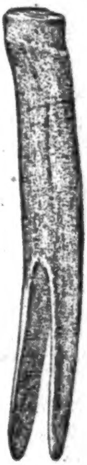

Fig. 42 ([illegible]). Bone Comb for preparing Sacrificial Sedge-Grass. Length, 22 cm.

Sacrificial sedge-grass is in use only among the Maritime Koryak. They comb it with a bidentate bone comb (see Fig. 42), which renders it as soft as flax, and make wreaths and necklaces out of it. According to Kraheninnikoff, the Kamchadal used sacrificial grass for the same purpose.

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[1] The distance between Paren and Gishiginsk is a hundred and fifty verst, or ninety-nine English miles.
[2] See also p. 37.

782 314 While the sacrificial shavings (ina'u) of the Gilyak and Ainu are in themselves sacred, the sacrificial grass (lau'te) of the Koryak, as such, is not sacred. It serves as clothing in ceremonial dances, and as dress and ornaments of the guardian figures. This grass, after having been charmed by incantations, is also used for medical purposes.

782 Food and ornaments are offered to guardian figures or charms, to sacred hills, to the fire, and to the dead. Meat and parts of killed animals are placed in front of the guardian figures, but usually they are simply smeared with fat. Tea, tobacco, scraps of woven fabrics, printed calico, or red cloth, and other trifles, are put upon the sacred hills. After every successful hunt, some meat and fat are thrown into the fire.

The feeding of the fire (Enalva'theñin) is a necessary attribute of the cult of the household hearth, and in some cases it seemed to me as though, through the fire, offerings were thus made to the Supreme Being. On the Taigonos Peninsula, when a drum was once brought out to me in the open without a cover, one of the women threw a piece of fat into the fire, lest The-One-on-High should send a storm for the transgression of the taboo. The dead are given presents, which they are supposed to take to relatives who have previously died; and these gifts are to be regarded as offerings.

Prayers in Connection with Sacrifices. — Prayers addressed to deities and spirits during the ceremonies of sacrificial offerings are not lengthy. Generally they say, "This for thee" (Vo'tto gı'ñkın), without mentioning the name of the deity to whom the sacrifice is offered.[1] I will give here some prayers pronounced during sacrificial offerings, which I had a chance to hear.

During my sojourn on the Tılkhai River, the official elder of the Reindeer Koryak slaughtered a reindeer to The-One-on-High, that his reindeer-does might be safely delivered of their fawn; and he said, "Well let us live, Existence!" (Nıme'leu mıtvala'ikın, Vahı'yñın!) While offering a reindeer to the kala, he said, "This for thee, that thou mayst not be wrathful."

When the Reindeer Koryak smear the sacred fire-board with fat, they usually say, "Take good care of the herd!"

A Koryak in the settlement of Big Itkana' killed a dog before starting on a journey, and said, "Take this, Thou-on-High!" (Vayo' Ģičhola'itıñ!) And when he sprinkled the blood on the ground, he said, "Take this, kala!" (Vayo', kala!)

Soon after the winter solstice, the official elder (Russian, starosta) of Kuel offered a dog-sacrifice to the Sun, and, appealing to him, he said, —

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[1] Jevons (p. 245), in quoting Bastian (Der Mensch, ii. p. 109), who apparently borrowed the following from Krasheninnikoff, says, "The Koreks slaughter a reindeer or dog, put its head on a pole facing east, and, mentioning no name, say, 'This for thee: grant me a blessing;'" and he sees in this fact a survival of the custom of offering the totem animal itself as a sacrifice, when there was therefore no need of mentioning the name of the god. Of course, in this case the conclusion is incorrect, since the Koryak know to what deity they offer the sacrifice.

1: Jochelson E-5 (1900-01) 1908 RY4 Koryak RY4

Of bone tools, the following, besides those already mentioned, are still in use: an axe of bone of whale, with which bark is peeled from trees to get gum, and with which sods are cut for covering the walls and roofs of underground houses;[1] a marline-spike (Fig. 151), which is indispensable on account of the extended use of lashings; bone combs[2] for combing sacrificial grass; and plant-stems for technical purposes. In the absence of iron, toggles and swivels for the dog-harness are made even now of bone or antler. For 412 321 [314] ●

[301]

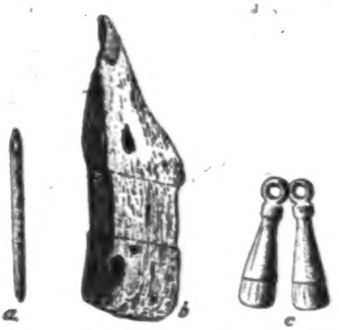

Fig. 150, a ([illegible]), Bone Needle (length, 4 cm.); b ([illegible]), Bone Implement of Unknown Use (length, 13.5 cm.); c ([illegible]), Bone Ear-Ornaments (length, 2.5 cm.).

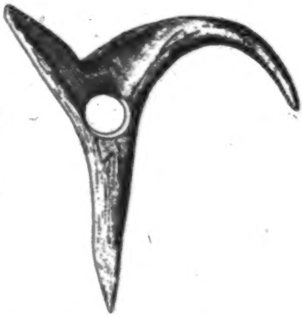

Fig. 151 ([illegible]). Marline-Spike. Greatest length, 17 cm.

making bone swivels, a ring made of the bone of a mountain-sheep is placed in boiling water, in which it expands and softens. Through this is passed the small head of a bolt, usually cut out of a walrus-tusk. After drying, the ring contracts around the body of the bolt, and the head cannot come out. Finally may be mentioned the Koryak bone-scraper described by Bogoras.[3]

WOMAN'S TAILOR-WORK. — All the clothing is made by women. The sewing for each family is done by the adult women, but girls from the age of twelve or thirteen on assist their grown-up relatives. Among the tailor's tools, the woman's knife has already been described.[4] Next, the needle and cutting-board should be mentioned. At present only imported steel needles are used. For sewing heavy skin clothing, only long thick needles are used. Special preference is given by the women to sailor's needles, with which they can pierce more easily than with round needles the thick skins used in winter for the inner sleeping-tents and the large outer tents. The cutting-boards are made in different sizes. For the most part, they are plain alder, poplar, [462] 281 294

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[1] It is curious to note that the bone axes that I have seen were mounted on a wooden handle, with the edge of the blade parallel to the handle, like iron axes, and not like adzes, as was formerly done. Thus, in the epoch of the transition from stone to metal is found not only the tendency to give metal tools the shape of tools of stone or bone, but also the contrary tendency to adopt for bone or stone tools the forms of imported iron-tools.

[2] See Part I, Fig. 42, p. 97.

[3] See Bogoras, The Chukchee, Vol. VII of this series, Fig. 147, p. 219.

[4] See p. 621.

285 are gathered in autumn. This plant grows on sloping sandy river-banks, and often reaches the height of a man. The women cut it down with knives, and carry it in sheaves to the villages. The grass is twisted into braids (Fig. 153, *a*), and bunches of these are hung on sticks in the storehouse.

The outer bark of the edible willow-herb[1] (*Epilobium angustifolium*) is used for technical purposes. The pith is taken out and used as food. Thread is twisted from the bark in the same way as from nettle. The winter supplies of willow-herb are gathered also in the fall, and are preserved in bunches (Fig. 153, *b*).

[114]

The Koryak must have used nettle for weaving before meeting with the Russians. From certain passages in Dittmar's[2] book on Kamchatka, the conclusion might be drawn that the Russians had taught the Kamchadal how to treat nettle for textile purposes; but Krasheninnikoff and Steller, who wrote of Kamchatka nearly a century before Dittmar, speak of the use of nettle for nets and baskets as a long-known industry of the Kamchadal.[3]

314]

The Koryak women gather nettles also in autumn, after the end of the fishing-season, tie it into bunches, and hang it under the storehouses to dry. In winter they work their yarn. With their teeth they pull off the soft fibres from the hard woody nettle-stems, pound them with a stick until the fibres come apart, and then twist these in the same way as they do sinew-thread.

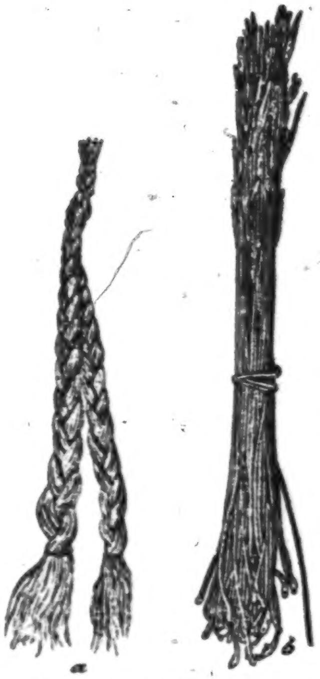

Fig. 153. Material for Basket-Work. *a* ([illegible]), Braid of Wild Rye (length, 72 cm.); *b* ([illegible]), Bundle of Willow-Herb (length, 84 cm.).

I have already spoken of the use of sinew-thread in sewing. For basket and bag weaving or netting, strands are made of from four to six fibres, which are twisted together. The spinning of the thread for weaving from these plant and sinew 000

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[1] See p. 578.

[2] Dittmar, Travel in Kamtschatka, pp. 160, 164, 363. It is quite possible that what Dittmar says does not refer to the preparation of nettle by the Kamchadal in general, but to the endeavors of Zavoyko, Governor of Kamchatka, to accustom them to an improved method of treatment by means of spinning-wheel and weaver's loom. But from the passages referred to in Dittmar it is not quite clear that he wanted to speak only of improvements in the Kamchadal method of manufacture. I do not know whether the better method introduced by the Russians has been preserved among the Kamchadal, but the Koryak employ even now the most primitive method of preparation of nettle.

[3] See Steller, pp. 83, 317; Krasheninnikoff, I, p. 332.

531 413 274 are filled in with smaller parallel triangles, and others remain undecorated. The implement was obtained by me in Kuel. The device shown in Fig. 191, *a*, is also made from walrus-tusk, and was obtained in the same place. It is used as a reel for winding embroidered and ornamented strips of skin or fur on its axle. These strips are used for trimming the edges of clothing. The axle and the two bone disks are decorated with dots, circles, and chevrons. Fig. 191, *b*, represents a bone ear-spoon collected by Mr. Bogoras in northern Kamchatka. The handle of the spoon is ornamented by a row of rhombi running lengthwise, and touching each other at their angles, inside of which vertical lines are engraved. The rhomboidal ornamentation resembles the engravings on Tlingit neck-ornaments,[1] which contain rhombi without etched lines inside. As we shall see further on, the Koryak women, in decorating their fur rugs, used rhombi to represent ice-floes (see Fig. 238). The reverse side is shown in Fig. 191, *b'*. Here may also be mentioned an engraved harpoon-head (Fig. 191, *c*).

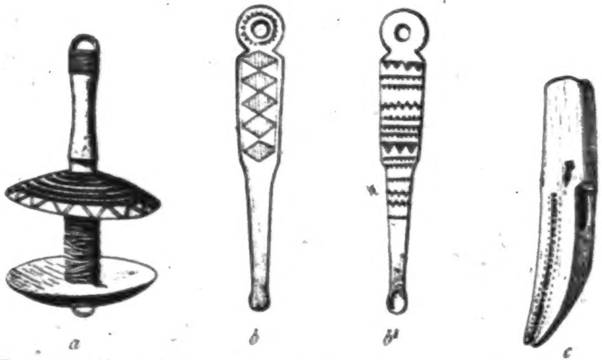

Fig. 191. *a* ([illegible]), Reel (length, 8.5 cm.); *b* ([illegible]), Ear-Spoon, Obverse and Reverse (length, 7.3 cm.); *c* ([illegible]), Harpoon-Head (length, 10.5 cm.).

531 [276] 314 Fig. 192 represents three snuff-boxes of birch-bark, made in Kamenskoye. Those shown in *a* and *c* can be closed with separate wooden covers; the handle of the cover in *c* represents a dog's head. The cover of *b* opens on a pivot made of tin tubes and wire. The engraved ornamentation is almost the same on all the snuff-boxes. It consists principally of dots, triangles, and concentric circles. The circles are somewhat similar to the circle-ornament attached to clothing (see Figs. 224 and 227). The cover on *b* is ornamented with the representation of a conventionalized plant, the veins being made of inlaid wire, while on *c* there is a row of double rhombi on the side.

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[1] See Hoffman, Plate IX, Fig. 1.

32

32 **PROCESSING OF BASIC MATERIALS**--general statements covering several aspects of the technology of converting basic raw materials into finished or semi-finished products. Data on the acquisition of raw materials, descriptions of the finished products, and information on the manufacture of complex artifacts, will be classified elsewhere.

of the legends describe the various adventures and tricks of the raven; they 773
represent him as a cunning lecherous old man who constantly deceives his
wife Miti and his numerous sons and daughters.

Some of the legends deal with the adventures of the raven's older son Ememkut (or Amamkut), a much nobler and more heroic figure than his father. The characters in the legends about the raven Kuykynnyaku and about Ememkut are half-human, half-animal: wolf-like, bear-like, fox-like, magpie-like and partridge-like creatures, a root-man, a grass-woman, and many others. These beings act like people, but they also possess the qualities of the animal or plant whose name they bear.

Historical legends, in contrast to the myths which are prevalent among 173
all the Koryaks, are of a local nature: each territorial group of Koryaks has
its own cycle of legends. The Chavchuvens, for example, have stories of [184]
clashes with Chukchi; the Apukintsy, of clashes with reindeer-breeding
Chavchuvens; the Palantsy, of wars with the Evens. The legends of each [648]
cycle are centered about the figure of a hero, who is different for every Koryak group. He is called enkhivyl''yn (literally—"strong man," a term close to the Russian "bogatyr'").

However, the figures of the heroes of all legendary cycles are endowed with the same traits; there are also recurrent motifs, such as attacks on sleeping enemies, deception of enemies with the aid of dummies, or turning enemies to flight by hitting dry skins, creating the sound of footsteps of a rapidly approaching, noisy horde, etc.

Of special interest in Koryak folklore are stories about masters and 773
their workers. These reflect the social stratification which was so pronounced among reindeer-breeding Koryaks at the time of the Revolution. A special subdivision of folk literature dealing with daily life consisted of tales about lucky and unlucky hunters. The Koryaks had also borrowed many Russian tales, but these were changed to such an extent that they were often difficult to distinguish.

The Koryaks had few proverbs and riddles. Their songs were also few. 538

Among their musical instruments, we must also mention, in addition to 534
the tambourine, the vanniyayar—literally, "tooth tambourine." This was a device widely found in Siberia: it consisted of a bone or iron plate, with a little tongue cut out in the center. At the base of this tongue was a tiny hole, through which a cord of reindeer sinew was drawn. The plate is held between the lips and the cord is pulled. The vibration of the little tongue produces a low, monotonous hum, resembling the muted sounds of a tambourine; the mouth cavity serves as the resonator.

Dances were usually performed during the seasonal celebrations. These 535
were ritualistic, almost always representing extremely naturalistic imitations
of the movements of seal, bears, reindeer and ravens. They were accompanied [533]
with a characteristic, deeply guttural, hoarse singing. The dancers were chiefly women.

At the seasonal festivals there were also various games and contests: 796
wrestling, foot races, reindeer and dog races, and tossing of people in seal 526
skins.

The Koryaks produced a large variety of artistic objects of bone, skins, 32
the skin and hair of reindeer, silk, copper and iron plates, etc. The men
made bone tobacco boxes with carved or engraved figures of animals, birds 531
and men; bone pipes, ornamented with lead or tin and decorated with figures 532
of bears, wolves, dogs, reindeer, and seals. The women specialized in fur
ornamentation with beads, silk and reindeer hair. The fur patterns adorning 462
the hems of Koryak clothes and hats were in the form of mosaics of pieces 294
of black and white reindeer fur. They were either geometrical (squares, 531
[462]

321

321 **WORK IN BONE, HORN, AND SHELL**--techniques of cutting, drilling, and polishing; treatment of special materials (e.g., ivory, mother-of-pearl, chitin); use of special implements and apparatus; bone, horn, and shell products not elsewhere described; industrial elaborations (e.g., button manufacture); specialized personnel and organization; etc. See also:

Tools	41	Featherwork	287
Marine industries	228	Ornaments	301
Animal by-products	237		

1: Jochelson E-5 (1900-01) 1908 RY4 Koryak RY4

77'5
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[784
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● [321]

twigs having a very remote similarity to human figures serve this purpose. They are also called "protectors" (ine'njulanu). However, this latter term is applied to the entire group of guardian-charms. The people usually wear the little kalaks attached to the belt, when travelling or hunting without companions. The Koryak are afraid to drive or walk alone through the woods or in the wilderness, because they believe that evil spirits (kalau), which haunt such places in large numbers, may easily overcome a lonely traveller. In such cases the little kalaks replace fellow-travellers, and serve as guardians against evil spirits. Another string of guardians (Fig. 7, *b*) contains a small human figure made of grass, charmed beads representing drums, and wolf's and hare's hair braided with sinew-thread. The Reindeer Koryak call the string of guardians okka'mak-lō'; that is, "wooden kamak face."[1] A snow-beater of antler, with a handle carved in the form of a raven-beak (Fig. 8), is also regarded as a fellow-traveller and guardian.

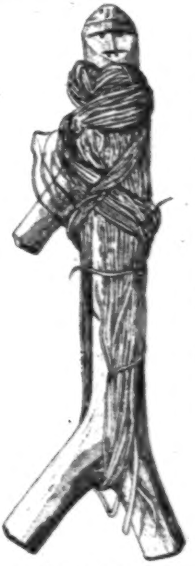

Fig. 6 ([illegible]). Guardian of Nets. Length, 21 cm.

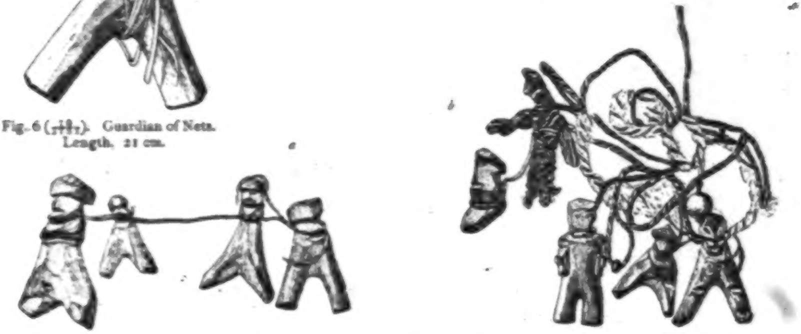

Fig. 7, *a* ([illegible]), *b* ([illegible]). Strings of "Little Kalaks," or Guardians. Length of figure, 4 cm.

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The-Searching-Kamak-Face. — This kalak (En·a'yıs-ka'mak-lō', literally "the searching kamak face") is the special protector of babies. It is usually sewed to the back of the child's shirt-collar[2] (Fig. 9, *a*). In the village of Paren I obtained such a protector attached to a strap (Fig. 9, *b*), which the child used to wear around the neck, under the shirt, like a cross; but

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[1] See p. 38, Footnote 3.

[2] It is interesting to compare this with the custom of the Eskimo of Baffin Land, where a woman who is with child wears an amulet attached to the back of her inner shirt (Boas, *Baffin-Land Eskimo*, p. 143); and among the Central Eskimo, amulets are always worn on the middle of the back of the inner jacket (Boas, *Central Eskimo*, p. 592).

the figure of the guardian rested on the child's back. Two little bags with 778
fragments of stone arrow-points were also attached to the strap; but their meaning 854
is not clear. The-Searching-Kamak-Face guards, keeps in place, or restores
the child's soul, which may leave the body or go astray. Small children are

[121]

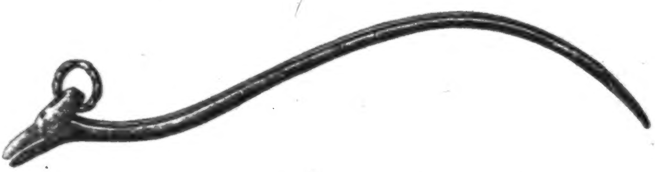

Fig. 8 ([illegible]). Snow-Beater serving as Guardian. Length, 54 cm.

especially subject to assaults of evil spirits, and the souls frightened by the latter desert the bodies. When children are asleep, their souls also leave their bodies, and lose their way. In such cases The-Searching-Kamak-Face catches them, and puts them back in place. [774]

Although the 'searching little charm' is, like the Roman *genius*, an individual protector of the child that wears it, it is to be regarded as one of the family *penates*. It is transmitted by inheritance. The older it is, the more powerful does it become. When a child is born in a family, the charm is taken off from the older child, and sewed to the clothing of the new-born child. A new charm is made only in case the family divides.

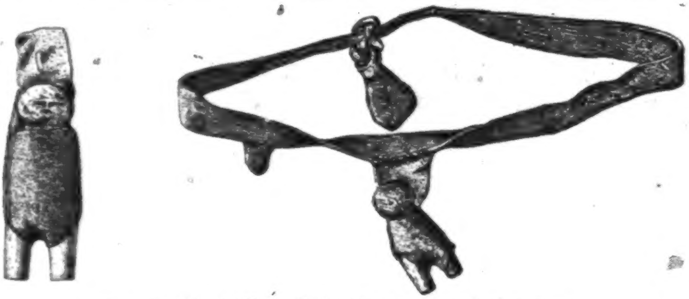

Fig. 9, *a* ([illegible]), *b* ([illegible]). Child's Guardians. Length of *a*, 10 cm.

THE SKIN BOAT AND ITS CHARMS. — Among the rest of the family deities, 178
the skin boat, as an implement for procuring food, is an important guardian 592
of the family hearth. Being closely linked with the family cult of the Maritime
Koryak, the skin boat cannot belong to two households that are not mutually 501
connected by ties of consanguinity. Neither can it be sold, or given temporarily to strangers. As one of the household *penates*, it is the source of the family's welfare. The owner of the skin boat generally takes along strangers,

782 along the bank of the Paren River were stakes driven into the snow, with dogs hanging on them, their muzzles pointing upward and the ventral side of the body facing east. In the light of the spring sun, this long row of dog-sacrifices offered a queer and sad sight. Part of this row is represented on Plate VIII, Fig. 2. I found out that the greater part of the dogs had been killed by the drivers of the sledges which I had hired, in gratitude for their safe return from the Russian settlement Gishiginsk, and to guard their village against the spirit of measles, which a year previous had come to them from that little town. Since every driver charged me but six rubles[1] for the drive to Gishiga, the sacrifice cost him more than he had earned.

Of course, from their own point of view, the Koryak have just as much right to sacrifice their dogs for the sake of their own welfare as we have to kill cattle to support our existence; but I never felt so sad on account of human delusions as when, approaching the settlement, I suddenly saw several dozen stakes with needlessly killed animals hung to them.

Only in the village of Big Itkana had I an opportunity to witness the offering of bloody sacrifices to the kalaks representing guardians of the settlement (see Fig. 4 p. 37; also Plate IX, Fig. 1).

778 Sacrifices offered to the sacred hills and rocks (apa'pel, "grandfathers") — which are regarded as guardians of roads, and protectors
782 of hunting — are placed on their summits or slopes. These may be dogs, or antlers of sacrificed reindeer. Plate XI, Fig. 2, (opp. p. 96), represents the sacred hill, situated on the seashore, close to the settlement of Mikino, in the direction of Kamenskoye. One of my drivers told me that this "grandfather" was very favorable to him. Once, when passing by, he had thrown a puppy to him, and on his way back he was met by a gray fox which was running to him, and which he killed with a stick.

782
314 Bloodless Sacrifices. — Bloodless sacrifices in the form of sacrificial grass, berries, blubber, meat, tobacco, tea, sugar, and other edibles, also of ornaments, are made to the fire, to the "owners," to the dead, and to the kalak-idols. Only the guardian of the settlement sometimes receives a dog-sacrifice. Besides this, the antlers of wild reindeer are piled up in front
[321] of it, since they are also regarded as sacrificial offerings (see Plate XII, Fig. 1).[2]

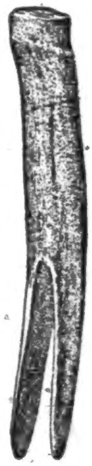

Fig. 42 ([illegible]). Bone Comb for preparing Sacrificial Sedge-Grass. Length, 22 cm.

Sacrificial sedge-grass is in use only among the Maritime Koryak. They comb it with a bidentate bone comb (see Fig. 42), which renders it as soft as flax, and make wreaths and necklaces out of it. According to Kraheninnikoff, the Kamchadal used sacrificial grass for the same purpose.

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[1] The distance between Paren and Gishiginsk is a hundred and fifty verst, or ninety-nine English miles.

[2] See also p. 37.

they have an ingenious device, which is also found among the Central Eskimo.[1] 501 The oar is placed in two crossing thong loops, which are attached to the rails. To prevent the oar from slipping in the loops, it has two wooden projections with notches, into which the loops are laid. One loop lies in the upper, the other in the lower notch. The loops are fastened to wooden guards, which cover the gunwale and protect the skin from the friction of the oars (Fig. 82). Among the Eskimo the guards are made of bone.[2]

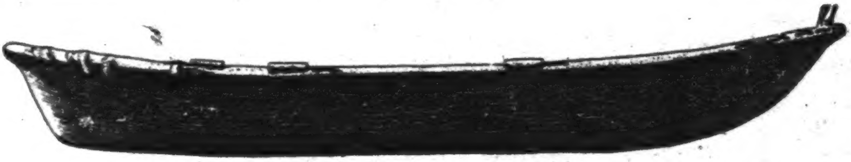

Fig. 81 ($\frac{70}{3418}$). Model of Boat. Length, 105 cm.

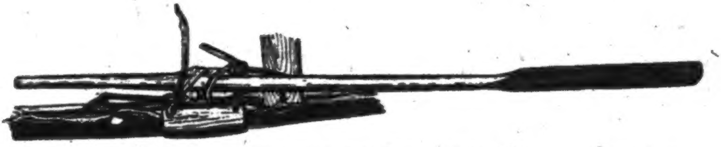

Fig. 82. Details of Rowlock (from a model, $\frac{70}{3418}$).

The Koryak have not as yet adopted the rudder, but steer with an oar. The blade of the stern oar is shorter but wider than the blades of the ordinary oars. Usually one half of the blade of the stern oar is made of bone of whale, [321] which is sewed to the wooden half by means of small thongs.

The Koryak are better sailors than the Kamchadal, but still they cannot 502 be called real seamen. They do not undertake long voyages, and rarely sail far away from the shores. In summer they often cross Penshina Bay (the inhabitants of Kamenskoye sometimes sail on to the Itkana), but such trips are made in calm weather only. With all their elasticity, the skin boats cannot withstand stormy seas. In times of stormy or foggy weather the men do not venture out, because the danger of tearing the skin cover on rocks is too great. When a rent of considerable size is torn in the skin cover, the boat sinks instantly. Small holes or openings that are caused during the voyage, near the water-line, are caulked with grease, and the travellers try to reach the shore as quickly as possible. Wooden scoops are employed for bailing out the water.

The Koryak have a rectangular sail made of dressed reindeer-skins sewed 000

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[1] Compare Boas, Central Eskimo, Fig. 481, p. 528.

[2] Compare Boas, Central Eskimo, p. 529.

326 412 long, narrow, ornamented, and well finished. The spears for every-day use are not ornamented. They are of simple and rough workmanship. Some spears are made with a ridge in the middle, which is also often met with on spears from the Amur region (see, Fig. 195).

Knives for special kinds of work are represented in Fig. 144. The woman's knife, *a* (ñau-wal) is of a sickle-shape, its form being an imitation of the ancient flat knife made of slate.[1]

281 412 177 The woman's knife has no sheath. It is kept in the work-bag, together with shavings of skin. With this knife, women cut skins and furs for clothing.[2] The cutting is done on a cutting-board. Koryak women rarely use scissors. Imported broadcloth for the upper coat, and calico for shirts, are also cut with the knife. Koryak blacksmiths do not manufacture scissors. The large shears shown by Bogoras[3] are the work of Yakut or Amur River blacksmiths. Yakut women cut skin for clothing with such scissors. Nevertheless Koryak women exhibited great joy when we presented them with ordinary narrow iron scissors in return for services rendered, or for submitting to being measured, and immediately pressed them into service.

321 531 322 Fig. 144, *b*, represents a knife with a long handle, specially used for carving in bone or wood. However, this knife is also called a belt-knife, and is worn at the belt in a sheath. Its wooden handle is covered with sheet-brass which is adorned with scratches made with the point of a knife, and evidently representing a technical ornament. Fig. 144, *c*, represents a straight knife (tami'ñu-wal, "working-knife"), and *d* a curved knife (keñ-wal, "curved knife"), used in carving bone and wood, and in hollowing out spoons, ladles, dippers, plates, and dishes.

326 412 Fig. 145 represents an iron chisel and an iron bow-drill for work in wood. The chisel (*a*) has a curved edge for making holes. The handle of the drill (*b*) and the bow are made of bone of whale. A similar bow-drill, only with a smaller point made of steel, is used also in riveting old kettles, and generally for boring in iron.

401 [372] 321 I did not happen to see a pump-drill in use. It is curious that the bow-drill is called in the Koryak language mi'lgıtine ("fire-procuring"). This points to the fact that the use of the bow-drill for procuring fire had preceded

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[1] Murdoch (The Point Barrow Eskimo, *Fig.* 106, p. 153) mentions an ancient large single-edged slate knife of this shape, belonging to the Eskimo, and supposes that it was used specially for cutting food. I am inclined to think that it was a woman's knife for cutting skin. Its shape is quite similar to the woman's iron knife of the Koryak, whose blacksmiths doubtless originally imitated ancient stone models. In Mason's article on the woman's knife of the Eskimo (Report of the U. S. National Museum, 1890, p. 411) are collected types of woman's knives of the Eskimo and certain Indian tribes from various localities. These illustrations show that nearly all — both the stone knives, and those of iron made in imitation of the stone ones — have a crescent-shaped blade, just as in the case of the woman's iron knife of the Koryak. Nearly all knives of which illustrations are given by Mason have handles like those of chopping-knives. Only in three of them (see *Plates* LIX, LXIV, and LXVIII, *Figs.* 1, 4, 2) do we see a handle on the side, just as on our woman's knife.

[2] Ornamented woman's knives are represented in Fig. 193.

[3] See Bogoras, The Chukchee, Vol. VII of this series, Fig. 151, *c*, p. 222.

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its use for drilling holes; but it is certain that the Koryak, prior to the 321 introduction of iron, were already using either a stone or a bone bow-drill to bore holes with. It may be supposed that the holes in stone ear-rings must have been made by means of the drill. 326

Fig. 146 represents a saw made 412 by the Reindeer 321 Koryak for cutting reindeer-antlers. It is made of sheet-iron by means of a file, after the pattern of imported steel saws. The teeth of the saw are very uneven.

Nearly the whole 326 of the Koryak black- 415 smith's work is confined to the iron tools above described. I should mention, in addition, the manufacture of kettles from imported sheet-iron by Koryak artisans. They beat these kettles out with hammers, and the bottoms are fastened on with mortise-locks, in imitation of the imported kettles, so that they arew ell suited for cooking-purposes. They do not make tin teapots, as they cannot solder on the spouts. The blacksmiths also make 412 pick-axes for picking ice-holes, marline-spikes, awls for sewing dog's harness, 326 scrapers for dressing skins,[1] paring-chisels, bracelets, and needle-holders.[2]

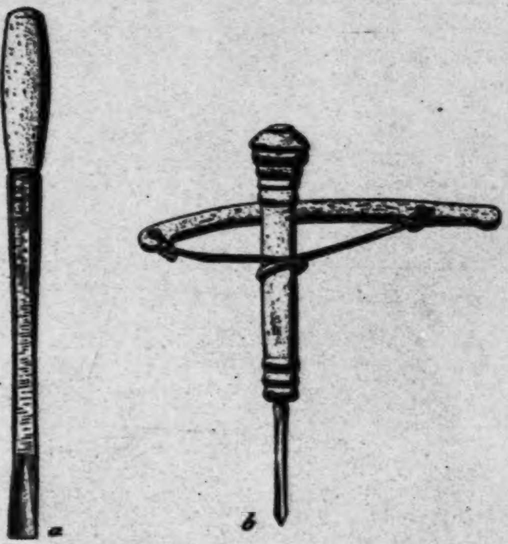

Fig. 145, *a* ([illegible]), Chisel (length, 25 cm.); *b* ([illegible]), Drill (length of drill, 30 cm.).

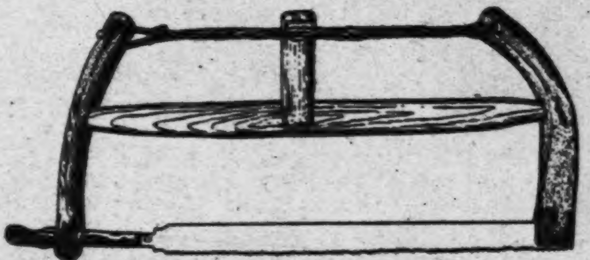

Fig. 146 ([illegible]). Saw. Length, 47 cm.

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[1] See Fig. 189, *a*.

[2] See also iron fish-hook (Fig. 79, p. 534), harpoon and arrow heads (pp. 546, 559), bird-dart (Fig. 95, p. 558), armor (p. 562), picks (p. 578), and ice-creepers (Fig. 30, p. 605).

325 The love for silver ornaments is equally strong among the Tungus and
the Yakut; among the latter, however, this passion has weakened of late,
301 under the influence of civilization. They even preferred silver to gold, though
the Yakut well know that gold is the more expensive metal, and though
Yakut silversmiths know how to smelt gold, too. Even the poorest Tungus
women have some silver ornaments on their dresses.

The Koryak, on the contrary, have no particular partiality for silver.
Even the women of wealthy reindeer-breeders do not always possess silver
[517] ornaments. The color of copper or brass is more suited to their taste than
the white color of silver. I remember that in Kamenskoye, when I offered
a Koryak woman the choice between a wide brass ring with a shining shield
and a narrow silver ring, she chose the former. A contrary result was
obtained from the same experiment at another time with a Tungus woman.

The Koryak call silver ñaña-po|ou'ntın ("easily selling iron"). This name,
therefore, expresses the superiority of silver over iron. The derivation of the
word for "iron" is unknown. At any rate, it was not borrowed from the Russians.

322 Work in Wood and Bone. — Wood and bone objects, from tiny carvings
up to sledges, are nowadays wrought only by means of the above-
177 described iron tools. For fastening the parts of sledges and of the frames of
skin boats, pegs of wood or iron are not used. Everything is tied with
leather straps; but the Koryak are fond of joining their small chests for
holding tea-dishes, or other objects, with steel nails obtained from the Russians.
Household objects of wood have been described before,[1] and carvings will be
discussed later. The netting-needle, and the vice used instead of iron pincers
for finishing iron objects with a file, are made of wood.

● 321 In addition to the knife for cutting herring,[2] many other tools are made
of bone, antler, or ivory. A thimble and ring of ivory, which protect the
thumb and index-finger in chipping stone tools and working wood with the
285] knife, have been described.[3] Fig. 150, *a*, shows a bone needle used in
weaving baskets of grass. Fig. 150, *b*, represents a bone tool found by me
172 in excavating an old underground dwelling at the mouth of the Nayakhan River.
412 In shape it looks like an imitation of an iron hammer, but with this difference,
that holes have been made in it for tying it to the handle by means
of small leather straps. What its practical application may have been, is
unknown. It is too small to have served for clubbing seals.[4] It was found
with potsherds; and if its shape has been copied from an iron hammer, then
321 the potsherds must be of very recent origin. Fig. 150, *c*, represents a pair
of ear-rings carved out of walrus-tusk with a knife. In shape these ear-rings
are an imitation of the stone ear-rings referred to before (see p. 610), but
differ from them in having linear ornaments.[5]

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[1] See p. 570. [2] See p. 573. [3] See p. 608. [4] See p. 545.

[5] See also bone lamp (p. 567), stool made of antler (p. 568), spoons (p. 571), fish-rake (p. 573), picks and pestle (pp. 577—579).

1: Jochelson E-5 (1900-01) 1908 RY4 Koryak RY4

Of bone tools, the following, besides those already mentioned, are still in use: an axe of bone of whale, with which bark is peeled from trees to get gum, and with which sods are cut for covering the walls and roofs of underground houses;[1] a marline-spike (Fig. 151), which is indispensable on account of the extended use of lashings; bone combs[2] for combing sacrificial grass; and plant-stems for technical purposes. In the absence of iron, toggles and swivels for the dog-harness are made even now of bone or antler. For making bone swivels, a ring made of the bone of a mountain-sheep is placed in boiling water, in which it expands and softens. Through this is passed the small head of a bolt, usually cut out of a walrus-tusk. After drying, the ring contracts around the body of the bolt, and the head cannot come out. Finally may be mentioned the Koryak bone-scraper described by Bogoras.[3] 4.12 321 ● [314] [301]

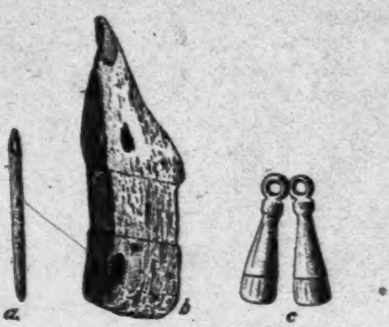

Fig. 150, *a* ([illegible]), Bone Needle (length, 4 cm.); *b* ([illegible]), Bone Implement of Unknown Use (length, 13.5 cm.); *c* ([illegible]), Bone Ear-Ornaments (length, 2.5 cm.).

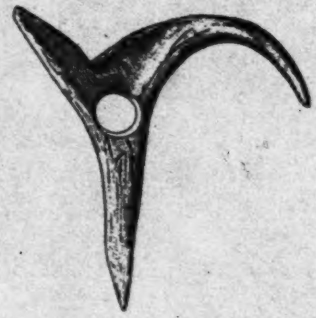

Fig. 151 ([illegible]). Marline-Spike. Greatest length, 17 cm.

Woman's Tailor-Work. — All the clothing is made by women. The sewing for each family is done by the adult women, but girls from the age of twelve or thirteen on assist their grown-up relatives. Among the tailor's tools, the woman's knife has already been described.[4] Next, the needle and cutting-board should be mentioned. At present only imported steel needles are used. For sewing heavy skin clothing, only long thick needles are used. Special preference is given by the women to sailor's needles, with which they can pierce more easily than with round needles the thick skins used in winter for the inner sleeping-tents and the large outer tents. The cutting-boards are made in different sizes. For the most part, they are plain alder, poplar, [462] 281 294

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[1] It is curious to note that the bone axes that I have seen were mounted on a wooden handle, with the edge of the blade parallel to the handle, like iron axes, and not like adzes, as was formerly done. Thus, in the epoch of the transition from stone to metal is found not only the tendency to give metal tools the shape of tools of stone or bone, but also the contrary tendency to adopt for bone or stone tools the forms of imported iron tools.

[2] See Part I, Fig. 42, p. 97.

[3] See Bogoras, The Chukchee, Vol. VII of this series, Fig. 147, p. 219.

[4] See p. 621.

XI. — ART.[1]

531 The art of the Koryak — expressed in carving, engraving on bone and wood, drawing, and ornamentation of implements — is similar in many respects to the primitive art of ancient man of that epoch of the stone age of southern Europe which is called by the French archæologists "époque magdalénienne."[2] The climatic conditions and the surroundings of the life of man at that period were, according to geological, palæontological, and archæological data, much like those of the life of the primitive peoples of to-day in the polar and near-by regions of the Old and New Worlds.

[114] The resemblance between the graphic art of the Eskimo and that found in the archæologic remains of the cave-dwellers of southern Europe has led some European archæologists to formulate the theory of the origin of the Eskimo from the cave-dwellers of France,[3] — a theory which is far from being well founded. However, the art of the modern Koryak, as regards sculptural carving and dress-ornamentation, is above the art, not only of the cave-dwellers of Europe, but also of the modern Eskimo.

321 322 Sculpture. — For carving, the Koryak employ different kinds of wood, the antler of reindeer and the horn of mountain-sheep, bone of whale, teeth of the white whale and the bear, walrus-tusks, and mammoth-ivory. Sometimes the horn of the narwhal, brought from the shores of the Arctic Ocean, is also used. The material most suitable, on account of its solidity and fineness of grain, is ivory of the walrus and mammoth, especially the latter, which is as hard as the former.[4]

321 Both the walrus and the mammoth tusk, before being carved, are put for some time into boiling water, which makes them softer for a while. Walrus-tusk is used to a greater extent than is the mammoth-tusk, because this latter is not found so frequently in the Koryak territory as in the more

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[1] The manuscript for this chapter was prepared by Mr. Jochelson while in Europe, and consequently he has not been able to consult the specimens in his collection. For this reason some matters of detail have been added by the editor, and also the greater part of the discussion relating to the technique and rhythmic arrangement of the designs on clothing, basketry, and rugs. — Ed.

[2] See G. et A. de-Mortillet, *Le Préhistorique* (Paris, 1900), p. 241.

[3] See Hoffman, p. 764.

[4] Mammoth-tusks, which are obtained as the result of occasional palæontological finds, furnish good material for carving if extracted directly from the frozen ground. Tusks so obtained usually have no cracks, are solid inside, clean and white, and not much inferior in quality to ivory. If, however, previous to being found, the tusk has been washed out of the ground and exposed to the air for any length of time, undergoing the process of weathering, it loses its consistency, begins to crack, and assumes a yellow color resembling that of tobacco-juice. Concentric layers are formed on the outside, which gradually separate from the rest of the mass, and crumble, making it unfit for carving-purposes. Articles made of walrus-tusk also lose their original whiteness when exposed to moisture for a long time. Old carvings from walrus-tusk, both of the Koryak and of the Eskimo, also acquire the yellow tobacco-color.

northern regions of the Chukchee territory, — in the tundra along the shores 321
and on the islands of the Arctic Ocean.

The shoulder-blades and vertebræ of the whale are also used for carving. Not being hard, this bone is well adapted for the purpose; but the coarseness of its grain and its dirty-gray color give to the articles made from it an unattractive appearance.

The antlers of reindeer and the horns of mountain-sheep also furnish good material for carving. They are inferior in fineness of grain to ivory. They are sufficiently smooth, and consist of a uniformly hard and tough but not fibrous mass, so that they can be carved and rubbed in all directions. Before being worked, they also are softened in boiling water. Owing to their dark color, however, they do not furnish a material satisfactory to the æsthetic taste of the primitive sculptor, and are used only in the absence of the white walrus or mammoth ivory.

Miniature toy figures of human beings, birds, and other animals, or spoons
ornamented with different figures, are frequently made from reindeer-antler 171
and sheep-horn. It is worth noting, that, according to Hoffman, quite a 321
number of specimens of Eskimo workmanship, upon which both simple forms of ornamentation and pictographic records occur, consist of pieces of reindeer-antler shaped into the desired form, and obtained from the barren-ground or woodland caribou; but no specimens of horn of the mountain-sheep or mountain-goat, which are employed by the more southern Coast tribes, have as yet been found in the Eskimo collections of either the United States National Museum or the Alaska Commercial Company in San Francisco, Cal.[1] Nor are any cases on record of sculptural carvings of animals made of reindeer-antler by Eskimo. Carvings in musk-ox horn are known, however, from the Eskimo tribes of the west coast of Hudson Bay.

Wood as material for carving is employed principally by the Koryak of 322
Penshina Bay, since they do not hunt walrus; but along the shores of Bering Sea, wood-carvings are seldom found, owing to the absence of wood in that region. Nor do we find many small wood-carvings of animals among the Eskimo. The Koryak employ for carving all kinds of wood found in their territory, such as larch, poplar, alder, birch, and stone-pine. As a rule, wood, owing to its fibrous quality and the lack of uniform density in its different layers, cannot be considered good material for sculptural work; and the impracticability of its use is further increased by the primitive instruments employed. The most suitable material, on account of its density, is furnished by the birch-tree and by the roots of the stone-pine; but the latter are so hard that they can be worked only with great difficulty by means of the knife.

Stone is not used by the Koryak as a material for sculptural purposes. 324

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[1] See Hoffman, p. 777.

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It should be noted that most of the carvings in Figs. 169 and 170 are made without mountings; and, in order to give them stability, the artist had to guess at the position of the centre of gravity. The drum, which is heavy as compared with the figure of the man, is designed to shift the centre of gravity to the fore part of the figure. All the drums held by the men in Fig. 169 and in Fig. 170 *b*, and the drum-sticks belonging to them, are carved separately from the human figure, and inserted in notches in the hands, the fingers being left entirely unfinished. On the contrary, the carving shown in Fig. 170, *a*, representing a dancer with a drum and a drum-stick, is wrought from one piece of walrus-tusk, including the base. This figure was made on the river Opuka. Its extremities are finished better than those in the preceding figures, and the hands have carved fingers as well. The drum-stick is too large as compared with the drum; but this license was taken to give support to the drum. It should be noted that not all the figures show the upper edge of the trousers, although it is supposed that the men are stripped only to the belt.

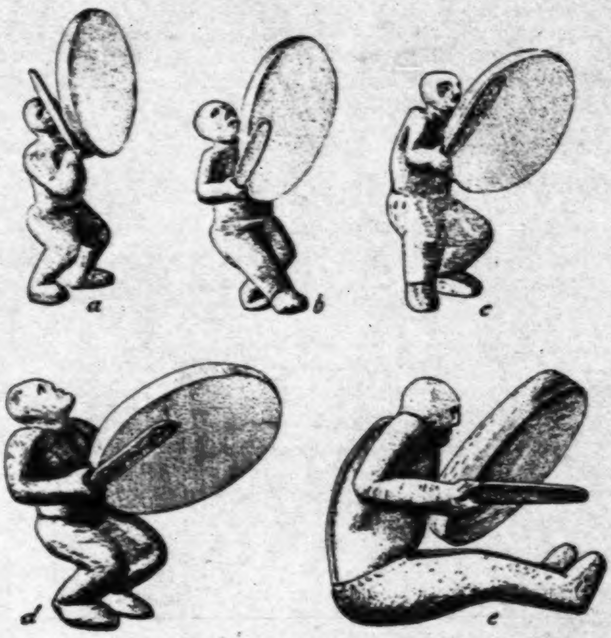

Fig. 169. Ivory Carvings representing Drummers. From Paren. ½ nat. size.
a ([illegible]), *b* ([illegible]), *c* ([illegible]), *d* ([illegible]), *e* ([illegible]).

532 321 517 The carvings represented in Fig. 170 differ from the preceding in that more care is bestowed on the representation of the head. While all the preceding figures have no hair and no ears, we find here the characteristic hair-dress of the Koryak shown. The middle of the head is shaved, and the ring of hair is indicated by an ivory ring with hachure. In Fig. 170, *b*, the ears are also represented. While in the first of these two specimens the lively motion and the characteristic pose of the head deserve particular praise, as also the attempt to represent the hand holding the drum and the rattles attached to the drum, the figure shown in *b* is very disproportionate. It is, however, the only one of this group in which the muscles of the arm are represented with any detail. The left profile of the man is particularly good. On the left side the folds in the skin of abdomen and chest, brought about by the forward inclination of the body, are also represented remarkably well. On the drum all the attachments are represented in detail.

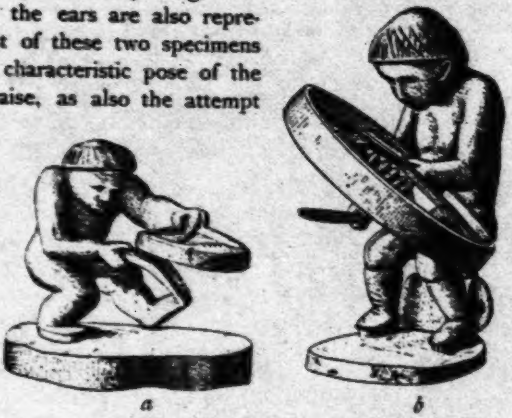

Fig. 170, *a* ([illegible]), *b* ([illegible]). Ivory Carvings representing Drummers. Height, 5 cm., 12 cm. *a*, From Opuka River; *b*, From Kuel.

Fig. 171 shows two men producing fire with the bow-drill. The execution of these figures is similar to that of the figures shown in Fig. 169.

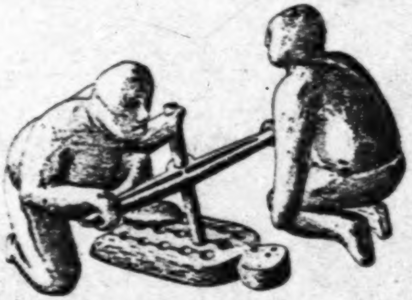

Fig. 171 ([illegible]). Ivory Group representing the Drilling of Fire. From Paren. Height, 7 cm.

A still higher technique and greater artistic merit are to be found in the figure of a man on a base, holding a drum, which was obtained by Mr. Bogoras on the shore of Bering Sea (Fig. 172, *a*). It is carved from walrus-tusk. The plastic curves of the back and the tense muscles of back and sides are rendered with anatomical accuracy and realistic vividness. The chest is flat, and the muscles are not indicated. This may be due to the difficulty of reaching the chest. The surface of the chest is rough, while the whole rest of the figure has a high polish. The head is executed in great detail; and the cut of the eyes, and the form of the cheek-

1: Jochelson E-5 (1900-01) 1908 RY4 Koryak RY4

bones, are quite characteristic of the Siberian type. The same vivacity, though less artistic execution, marks Fig. 172, *b*, which represents a man who has caught by the antlers a young reindeer which is trying to pull back. In Fig. 172, *a* and *b*, the heads of the human figures are represented as having the hair cut in a circle, and tonsured in the middle.

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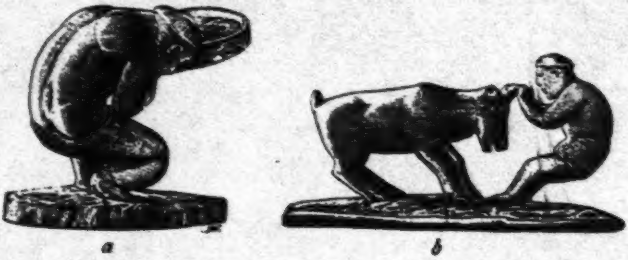

Fig. 172. Ivory Carvings. *a* ([illegible]), Drummer (height, 6 cm.); *b* ([illegible]), Man and Reindeer (height, 4.5 cm.).

Fig. 173, a human figure in sitting posture, made from wood in the settlement of Big Itkana, represents the captain of an American whaling-schooner who goes to Penshina Bay nearly every summer. The figure is painted black. This figure is marked by the absence of any artistic merit like the other wood-carvings of the Koryak of Penshina Bay; but it is interesting to note that the figure is given a droll aspect with the hat pulled over the eyes, the buttoned-up coat, and the hands thrust into the pockets. Similarly we find in the Chukchee collections of carvings of the Ethnographical Museum of the Imperial Academy of Sciences in St. Petersburg a human figure — judging by the cap, an American or Russian, — in a comic and rather indecent posture.[1]

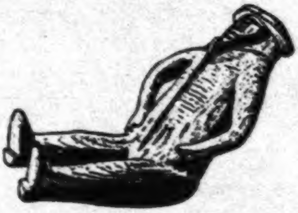

Fig. 173 ([illegible]). Wood-Carving representing Captain of a Whaling-Vessel. From Itkana. Height, 9 cm.

Among the walrus-tusk carvings from the shores of Bering Sea, representing human beings, we found also specimens without any artistic value, as is shown by Fig. 174, *a*, *b*. These two crude carvings, — with arms indicated, but not separated from the rest of the body, — although obtained by me in the settlement of Kuel (Penshina Bay), had their origin on the Opuka River (Bering Sea).

Fig. 174, *a*, represents a woman in a sitting position, with a child on her lap. The hole in the lower part of the figure shows that it is intended

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[1] See Bogoras, Chukchee Material Life, Plate xxi, Fig. 12.

532 to be carried on a strap, and to serve as a toy, not as a specimen of real
517 art. This explains why the figure has no finish. The face of this figure is
321 perfectly flat.[1] Fig. 174, *b*, also appears to represent a woman. The occurrence of engraved and etched concentric and single circles, dots, and lines, which are common ornaments on the animals carved from ivory by the western Eskimo, are to be noted on this figure, and also the suggestion of an Eskimo woman's jacket, with its characteristic hood and front flap. On the back the row of circles with dots is continued by two more circles on each side, leaving the middle of the back, just over the legs, undecorated. Over this row is another horizontal row of five circles with dots, which extend over the back from arm to arm. The collar-like shoulder-part is continued over the back with a slight curve downward. The space between the double line, which is continued from the front over the shoulders, and the sharp lower edge of the garment, is occupied by a line of seven black dots which slant a little upward from left to right. On the middle of the hood at the back are two circles with dots, — one over the other, — and a number of vertical lines of dots which curve forward at their lower ends. This figure probably represents an Eskimo woman, or it may have been made by an Eskimo artist.

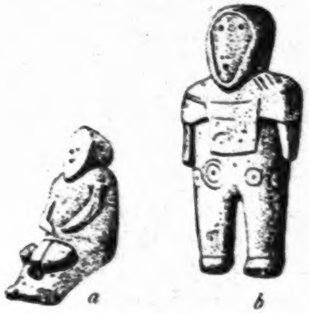

Fig. 174. Ivory Carvings. *a* ($\frac{70}{3154}$), Woman and Child (height, 2.5 cm.); *b* ($\frac{70}{2841}$), Woman in Fur Dress (height, 6.5 cm.).

In connection with the various Koryak carvings, the wooden figures of men should be mentioned, made without any artistic finish, with their extremities on pivots, like mechanical dolls. These figures serve as toys for children, and are to be found also among the Chukchee.[2]

532 At a previous place I called attention to the crudeness of the images
778 and the conventionality of the figures of idols and amulets.[3] Compared with the carvings of the Koryak of the coast of Bering Sea, the images of their
517 anthropomorphic "guardians" appear like the products of a backward tribe.[4] In connection with this question, I advance the hypothesis that the cause of the crudeness of religious carvings lies in the vague conception of the artist as to the appearance of the invisible anthropomorphic beings. Between the

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[1] Compare Part I, Fig. 56, p. 114.

[2] See Bogoras, Chukchee Material Life, Plate XXI, Fig. 7.

[3] See Part I, p. 115.

[4] In a note published in C. Lumholtz's Decorative Art of the Huichol Indians, Professor Boas discusses the crudeness of amulets and other sacred objects, as compared to the elaborate finish of objects of art. He calls attention to this phenomenon among the Huichol Indians, the Gold, the Gilyak, and other tribes (see Memoirs of the American Museum of Natural History, Vol. III, p. 287).

321 *Bone Chains.* — In speaking of the skill of the Koryak in carving figures of human beings and animals from bone, the art of carving chains with whole unbroken links from walrus or mammoth ivory must also be considered. Although the completed chain shown in Fig. 188, *f*, resembles in shape a metallic watch-chain, and would seem to be an imitation of it, yet the bone chains, heavier than these, serving as handles for baskets, buckets, etc., were carved by the Chukchee and the Koryak long before they met the Russians. Krasheninnikoff, in his time, could not help admiring the workmanship of such chains made from walrus-tusk, and brought to Kamchatka from the Chukchee Cape.[1] Among the Eskimo bone bag-handles, we find even now chains with links carved out of a single piece of ivory. In Nelson's collection there are numerous specimens of chains that serve as bag, drag, and other handles.[2]

Chains of different sizes, carved out of a single piece of bone or wood, and serving as handles and for other purposes, are found also among the Gilyak and Ainu. Specimens of such chains are in the American Museum of Natural History as well as in the British Museum in London, and in the Museum für Völkerkunde in Berlin.

[524]

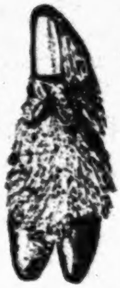

Fig. 187 ($\frac{70}{3356}$).
463 Doll made of a Reindeer-Hoof. Height, 10 cm.

321 Not all the Koryak are equally skilful in the work of carving in general, and of chain-carving in particular. In each locality there are men who are specially skilful in this or that branch of the art. Thus, for example, there is a blacksmith in Paren, on the western coast of Penshina Bay, by the name of Kıya'učnın, who is known for his skill in carving bone figures of men and animals; while the Koryak A'xa, of Shestakovo, is known for his ability in carving bone chains.

321 Fig. 188 represents chains of his workmanship in all stages: *c* is a sawed-off piece of walrus-tusk; *d*, a piece which has been whittled down with a knife to a quadrilateral form bearing the marks of the first few future links; *e* shows the progress of the work in carving the links; and *f* represents the completed chain. Here we notice that in carving the links, the chain *f* has gained in length as compared with the tusk, as shown in *d*, to the extent of 12 cm., the tusk being 32 cm. long, while the chain measures 44 cm.

The Koryak used stone implements in working bone before they knew of iron. The walrus-tusks were split into strips by means of stone chisels and wedges, and the work was continued by means of stone knives and awls. At present tusks are sawed by means of an iron saw, home-made or imported, and the rest of the work is accomplished with the aid of a knife.

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[1] See Krasheninnikoff, II, p. 50.

[2] See Nelson, Plate XLIII, Fig. 1; Plate XLVI, Figs. 4, 7, 10; Plate LII, Fig. 16; Plate LXVI, Figs. 18, 19. See also Hoffman, Plate LV, Figs. 1-3.

Fig. 188, *b*, represents the knife which Axa used in carving his chain; 321
a shows the sheath of the knife. The artist uses nothing but the knife in
his work. Other Koryak also use curved knives.[1] The polishing of the 412
carved articles is done with soft reindeer-skin. Considering the shape and
size of the rings of Axa's chain, one cannot help admiring the precision of
eye and the sense of symmetry of this primitive turner.

Fantastic Carvings. — Among the Koryak animal carvings, some are 532

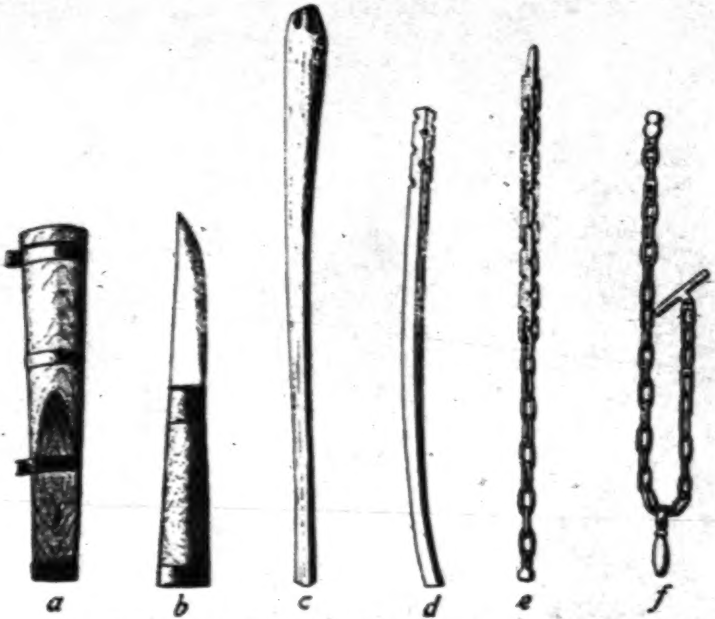

Fig. 188 ([illegible]). Carving-Knife with Sheath, Ivory Chain in Process of Manufacture, and Completed Chain. ½ nat. size.

found with monstrous forms; for instance, in my collection there is a little figure of a partridge with two heads. The Koryak from whom I obtained this carving could give me no satisfactory explanation of it; and I do not know whether it was the product of the individual fancy of the artist, or whether it represents some mythical bird. Among the carvings of the Eskimo of Point Barrow, reproduced in Murdoch's work, we also find figures of animal monsters, among which there is an ivory carving of a ten-legged bear and a double-headed animal carved from antler.[2] Murdoch's illustration reprewith large nets sewn together from the smaller ones they owned individually. 226 [476]

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[1] See Fig. 144, *d*, p. 621.

[2] See Murdoch, Figs. 413, 414, 416, pp. 405–407.

Other methods of fishing included fishing with the aid of an iron hook (marik) and "dipper" nets. The fisherman stood up to his knees in water, holding in his hands an implement that looked like a large sack-net on a long pole. Sighting a fish, he quickly directed the net towards it, scooping it up and throwing it out on the gravel shore. This method was used in the beginning of the fish-run, before the cooperative set to work.

Most of the catch went into the making of yukola. The fish were disemboweled and hung to dry on special racks. The yukola (fish dried in the sun and the wind) was put away in storehouses—tents on high piles, covered with dry grass. Yukola was usually made by women, while fishing was done chiefly by men. The yukola was the principal food of the people all year; it was also used as feed for the dogs, in addition to "pickled fish"—freshly caught fish piled into a pit, covered with earth, and left to ferment until needed. 262 251 [462]

An important auxiliary occupation among both sedentary and nomad Koryaks was hunting, which was done solely by men. The fur animals hunted were fox, wolverine, otter, hare and ermine. 224 184

Fur-animal hunting was most important among the Palantsy, who lived in a region abounding in Kamchatka sable. These were trapped in nets. Other animals were hunted with guns. Foxes and smaller animals—yevrazhka hamster and ermine—were caught in springtraps. The latter two were usually hunted by adolescent boys. Hares and partridges were caught with a noose. In early spring, many hunters took meat animals—bears, Siberian marmot, wild reindeer and mountain sheep. Tundra animals were usually hunted without the aid of hunting dogs, which were owned by relatively few hunters. [462] [883]

An important role in Koryak economy was taken by the gathering of wild plants. The gathering of edible roots, grasses and berries was women's work. Roots were obtained chiefly from mouse-nests. Searching out a mouse-nest, the woman dug it up with a special wooden hoe and took from it the store of edible roots prepared by the mice. The berries gathered were blueberry, cloudberry and crowberry. 222 [462]

Grass was used to make inner lining for boots, and was also woven into mats, baskets, bags and purses. The weaving of variously shaped baskets, from those in the shape of bowls and trays down to small oval boxes with lids, and also bags of various shapes and sizes was especially developed among the Karagin and Alyutor women. 285 184

The men widely engaged in carving bone and the horns of wild sheep. 321 ●

One of the villages of the northern coastal Koryaks—the village of Paren' on Taygonos Peninsula, was long known for blacksmithery. The Paren' blacksmiths reforged accidentally gotten pieces of iron into knives famed throughout the Koryak territory and beyond it. Even in the early years of the current century, the local Koryak population preferred them to imported Russian and American knives. 326

Housing

The dwelling of the reindeer-breeding Koryaks (yaranga) was a tent, similar to the Chukchi yaranga (called yayan'a in the Chavchuven dialect, and raran'a in the Alyutor dialect). Cylindrical at the base and conical at the top, it had a framework of poles and was covered with reindeer skins, with the fur outside. The pelts to be used for covering the yaranga were scraped a little; some of the flesh side was peeled off, then it was kneaded and smoked to make it waterproof. For summer dwellings, the hair was removed, or else worn, old coverings were used. 342 281

322

322 WOODWORKING--methods of seasoning wood; techniques of shaping (e.g., cutting, planing, burning, warping); treatment of special materials (e.g., coconut, bamboo, gourds, bark); use of special apparatus; finishing techniques (e.g., oiling, lacquering); elaborated woodworking crafts (e.g., cooperage, cabinet making), manufacture of wooden and other furniture; specialized personnel and organization; wooden products not elsewhere described; etc. See also:

Lumbering and sawmills	313	Shipbuilding	396
Carpentry in building construction	335	Lathes and other woodworking machines	402
Description of furniture	352	Tools	412
Woodworking machine manufacture	392	Sculpture in wood	532

III. — GUARDIANS AND CHARMS.

771 778 Passing from the conceptions of invisible supernatural beings to the religious significance of concrete objects, I shall begin with a discussion of guardians and charms. It is very difficult to answer the question, In what way does an image of man or animal, made by man, or do objects in their natural state and having no likeness to animated objects, come to be considered as deities or guardians? It is impossible to obtain a direct explanation from primitive man. I will relate here a case that I witnessed myself. Two brothers, Reindeer Koryak from Tılqai River, after their father's death, divided between themselves the reindeer-herd, intending to live apart. According to custom, the family sacred fire-board,[1] the guardian of the herd, was given to [322] the younger brother. Then the older brother made a new sacred fire-board for himself. With adze in hand, he went to the woods, and soon returned with a newly hewn wooden figure. It was put upon the cross-beam over the hearth to dry, and in a few days its consecration took place. A reindeer was slaughtered as a sacrifice to The-Master-on-High (Ģıčhoˈl-etıʹnvılaᵋn), and the figure was anointed with the sacrificial blood and fat. Thereupon the mother of the two brothers pronounced an incantation over it, consisting of an appeal to Big-Raven to set up the new sacred fire-board as a guardian of the herd. Then fire was for the first time obtained from the sacred fire-board by means of drilling; and the wooden god, or rather guardian, black from hearth smoke, and shining from the fat that had been smeared upon it, became the guardian of the herd and of the hearth. "Now my reindeer will have their own herdsman," said Qačai, the older of the two brothers, with a smile, in reply to my questions.[2] It seems to me that there are two elements which participate in this transformation into a guardian, of a piece of wood shaped into a crude likeness of a human figure. First, there is the conception of a concealed vital principle in objects apparently inanimate. Second, there is the mysterious influence of an incantation upon this vital principle; i. e., the power of the words of man to increase the force of the vital principle, and to direct it to a certain activity. In what way the guardianship is exercised by the charm is a question which the Koryak never put to themselves; but it is exercised by means that are not perceptible to our senses.

While the invisible, organizing, creative, and destructive forces — The-Master-on-High, Big-Raven, and kalau — are deities or spirits of the entire tribe (with the exception of those that serve individual shamans[1]), the "protectors or guardians" belong each to a family, an individual, and in some cases to a whole village. In general, the guardians form a group of objects that are supposed to take care of the welfare of man, and keep away all evil from him. The particular function of the guardians depends upon the office with which they are charged. The same little figure may act as the guardian of a family or of an individual. Nevertheless some "guardians" have definite forms and duties. 771 778

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[1] See p. 33.

[2] It was clear that his attitude towards the new guardian was somewhat sceptical, but the ancient custom proved stronger than his scepticism.

I shall now enumerate those guardians about which I have succeeded in gathering information, and which are contained in the collection of the Museum. 532 322●

SACRED IMPLEMENTS FOR FIRE-MAKING. — The sacred implements for making fire are the following: — 372 778

A fire-board with holes in it, called gi'čgič or ge'čgei (Chukchee, gı'rgir), in which the drill is turned. The board is usually of dry aspen-wood, which readily ignites, and is roughly shaped like a human being. A head is carved out at one end; and eyes, nose, and mouth are indicated (Fig. 2, *a*, *b*). In some boards the opposite end is carved to represent the legs.

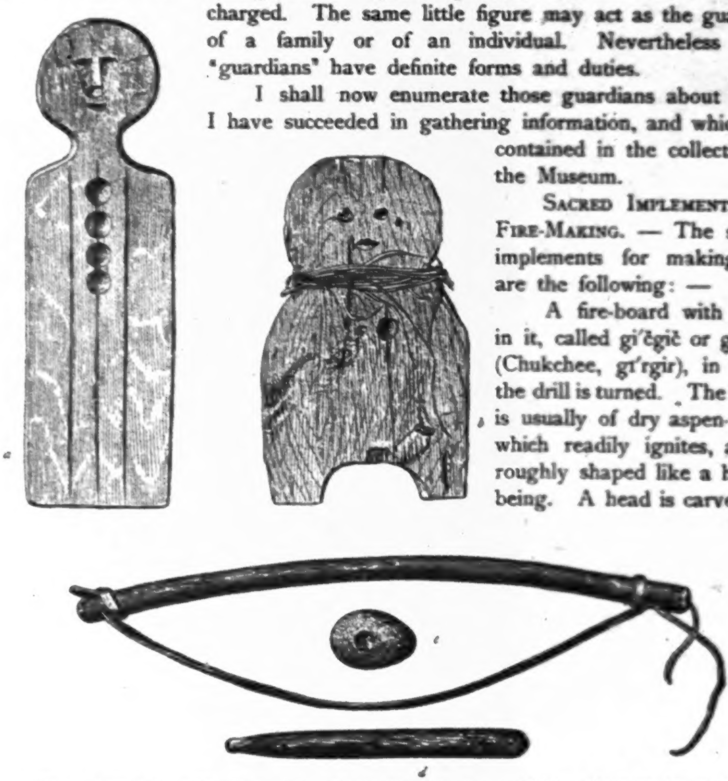

Fig. 2. Sacred Fire-making Implements of the Maritime Koryak. *a*, *b* ([illegible], [illegible] a), Fire-Boards (length, 42 cm., 25 cm.); *c*, *d*, *e* ([illegible] a, b, c) Bow, Wooden Drill, and Stone Head-Piece (length of bow, 47 cm.).

A small bow, called e'yet (Fig. 2, *c*).

A wooden drill, called mā'xem ("arrow"), Fig. 2, *d*.

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[1] See Chapter IV, Professional Shamans.

532 A head-piece of stone or of bone, with a shallow socket, called čeñe'yine
● 322 (Fig. 2, *e*), which is put upon the thin upper end of the drill; while the thick
778 lower end of the drill is set into one of the holes in the board. The head-
37 piece (*e*) is held by one person, the board by another, while the bow is turned
by a third person (see Plate VI). The thin end of the wooden drill, and one end of stone head-piece, have holes bored in them, that they may be tied, when not in use, to the straps at the end of the bow (Fig. 2, *c*).

The fire-drill is not complete without a small leather bag filled with small pieces of coal, in which the coal-dust produced by drilling is collected. It is considered a sin to scatter the coal-dust.

The Maritime as well as the Reindeer Koryak consider the sacred fire-board, first of all, the deity of the household fire, the guardian of the family hearth. During important festivals and ceremonies, which will be described later on, fire is obtained by means of these sacred fire-boards.

The other functions of this charm are different among the two groups of Koryak. Among the Maritime Koryak the sacred fire-board is the master of the underground house and the helper in the hunt of sea-mammals, while among the Reindeer people it figures as the master of the herd. The Maritime Koryak call it "father" (a'pa); the Reindeer people, "master of the herd" (qaya'-etı'nvıla^n) or "wooden kamak" (otkamak).

[353] At the left side of the house of the Maritime Koryak, near the door
leading to the porch, a place is usually set aside for guardians and charms,
and it is called the "stake-house" (op-yan). There wooden charms are driven
into the ground or set against the wall. The sacred fire-board is the most
important among the images of this shrine. It is adorned with a collar made
of sedge-grass, which is used in all sacrifices. This collar serves the charm
[788] in place of clothing. It is "fed" from time to time by smearing its mouth
with fat. This is done not only during festivals that have a direct bearing on its cult, but also on the occasion of all other religious and family festivals. From the sacrificial fat, the soot of the hearth, and the indescribable filth prevailing in the Koryak house, the charm becomes covered with a heavy coat of shining black filth; and the more highly esteemed the charm is, the dirtier and the blacker will it become. When, owing to frequent use, the entire base of the charm is filled with holes, a new board is made. The old one, however, is left, like a deserving veteran, in the place set aside for the sacred objects. When moving from the winter house into the summer house, nearer to the sea, the Maritime Koryak takes his charms along; but sometimes summer and winter house have each their own sacred fire-board. I remember having seen the Koryak Yulta make a new sacred fire-board for his winter house because he had forgotten his old one in the summer house; and when the following summer came, he left the new sacred fire-board in his winter house. In the summer of 1900, when visiting a deserted settlement

along the Paren River, I found a sacred fire-board that had been left behind in one of the houses. It was lying on the ground near the wall, covered with dust, among some seal-bones, old dishes, and scraps of clothing. 532 322●

The sacred fire-board of the Reindeer Koryak, the "master of the herd" (qaya'-etı'nvıla'n), is kept during the winter in a bag on a pack-sledge or on the covered sledge, which is occupied during travels by the mother and the small children. When the wandering family makes a stop, the sledges are left outside, near the tent. During the summer the sacred fire-board hangs on a cross-beam in the tent. 778 372

Besides the articles enumerated above, that are necessary for obtaining fire by drilling, and the bag for the coal-dust, the "master of the herd" of 532 778 233

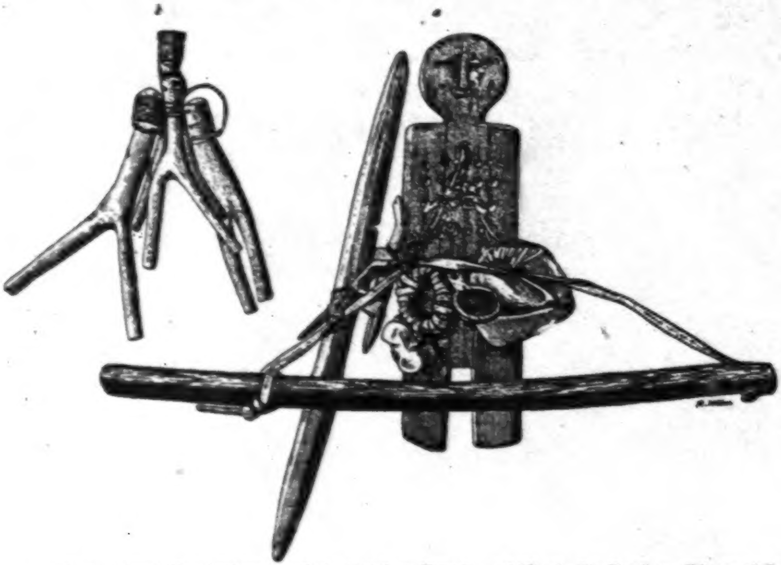

Fig. 3. Sacred Fire Implements of the Reindeer Koryak. *a* ($\frac{70}{3378}$ a), Fire-Board, or "Master of the Herd," with Attachments (length of fire-board, 33 cm.); *b* ($\frac{70}{3375}$-$\frac{70}{3371}$), Attachments from a Fire-Board, representing the Assistants of the "Master of the Herd" (length, 10 cm.).

the Reindeer Koryak is also supplied with a lasso, a watch-dog, a sacrificial ladle, an image of a wolf (Fig. 3, *a*), and several little wooden figures. The sacred fire-board keeps the wolf near him to prevent his assailing the herd, while the little forked figures (Fig. 3, *b*) serve as his assistants in guarding the herd, and are called oya'čiku, which properly means "boys," "fellows," although this word has also the meaning of "laborers" and "herdsmen." The sacred fire-board also secures the herd against sickness, and prevents the

501 this reason the ribs which join keel and rails slant upward. Thus the cross-section of the bottom of the kayak has the form of an obtuse angle. Thin boards fastened with thongs to the inner sides of the ribs, and running the full length of the kayak, between the rails and the keel, give additional strength. The deck is formed by cross-bars running from one rail to the other. The manhole is near the middle of the deck, which is also strengthened by longitudinal strips. [281] The manhole is formed by an oval hoop. A broad board lying at the bottom of the boat under the rear end of the manhole serves as a seat, which is usually covered with a piece of sealskin. Like the skin boat, the kayak is covered with thong-seal skins. Ordinarily two skins, the hair of which is not always removed, are sufficient. After the kayak has been covered with skin, the manhole is placed in position. The cover is so cut at the manhole as to leave enough material to turn in the edges, which are sewed around the hoop by means of thongs.

The kayak is very light, so that it can easily be lifted with one hand. The weight of one is 32 pounds. Its length is 269 cm. and its maximum width (i. e., the diameter of the manhole) is 75 cm. Its height is 28 cm.

Near the prow and the stern of the kayak, skin handles are sewed for pulling it out of the water, either upon shore or upon floating ice, or for carrying it across promontories. In certain settlements only a double-bladed oar, like that of the Eskimo, is used with these kayaks. It is held with both hands, in the middle, and the two terminal blades are used alternately. In Itkana and Paren two paddles with short handles are used, the blades of which have on one side pieces of bone of whale sewed on, which look like fins. These small oars are 41 cm. in length. They are tied to the rim of the manhole with a thong one metre in length, so that they can be dropped into the water or placed within the kayak while casting the harpoon or while shooting. With these short paddles they row alternately with right and left hand, bringing their hands down almost to the level of the water.

501 Sitting in the manhole, the hunter can stretch his feet under the deck of the kayak. 225 In the kayak he places the harpoon-heads, the throwing-board, the bag with the harpoon-line, and his arrows. In the hold of the kayak are kept the harpoon-shaft, spears, and gun. When making ready for an attack on sea-animals, the hunter places the harpoon on deck, first thrusting the end of the shaft into a skin loop which is sewed to the deck of the kayak near the prow.

502 The progress of the kayak in calm weather is extremely fast; but its use is not without danger, as it is easily upset by wind or waves, and it is necessary to balance it carefully while paddling. In stormy weather the Koryak do not venture upon the sea in kayaks.

501 322 *Dug-Outs.* — In the settlement of Kamenskoye and in northern Kamchatka dug-out canoes are also used, like those employed by the Yukaghir

and Kamchadal, who have no skin boats. These canoes are called strushok 501
(стружокъ) by the Russians, and yañča'atwat or yañıya'atwat by the Koryak. 322
They are hollowed out of poplar or aspen trunks by means of an adze, and are so well made that they are not heavier than skin canoes.[1] The dug-out is propelled with a double-bladed paddle, while in shallow and rapid rivers it is punted with two short poles. The dug-out is rather a river-boat; but the inhabitants of Kamenskoye, and the maritime Koryak of northern Kamchatka, go out in them on the bays to hunt seals, like the Kamchadal.

Another kind of dug-out, but for river use exclusively, is that called bat 501
(батъ) by the Russians, or ellɛ'ut by the Koryak. It is about twelve metres long, or longer, narrow, and heavy, roughly hewn, and hollowed like a trough. It is in use also among the Kamchadal, but is not met with among the Yukaghir. This boat is used mainly for crossing rivers and for trips up and down rivers. It is built for two persons on the prow and one at the stern, who use long poles for punting. When fish are caught on the bank opposite a village, they are taken across in such boats. For ferrying cargoes and men across the river or floating them down the river, a catamaran is made of two such boats, which are joined by means of a bridge (Fig. 84). A double boat of this kind is very convenient for freighting, and is quite safe. Whenever the Koryak fish in the river, above their village, they descend with their families and their catch in such crafts when the fishing is over.

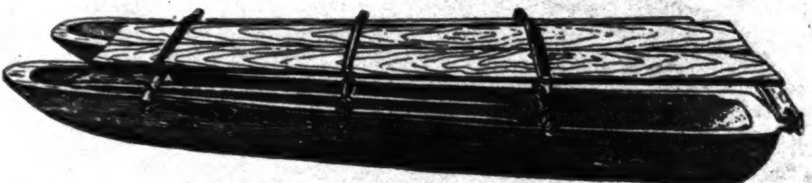

Fig. 84 ([illegible]). Model of a Double Boat. Length, 61 cm.

Hunting of Sea-Mammals. — Among the palæasiatic tribes, the seden- 225
tary Yukaghir alone live by fishing exclusively. The Kamchadal engage in 171
fishing principally, and hunt very little for sea-mammals. Among the Maritime Koryak, as among the Gilyak, the hunting of sea-mammals is of great importance, although at present in most of the Koryak settlements fish is a more important staple food than sea-mammals. In former times the hunt for sea-mammals was more important among the Koryak than it is at present. Like the Eskimo, the Maritime Chukchee continue to hunt principally sea-mammals, and fishing plays a secondary rôle in their household economy.

Seal-Hunting. — Seal is the mammal most extensively hunted, especially 000

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[1] Further details concerning dug-out canoes will be found in the monograph on the Yukaghir.

411 At present the bow is used in hunting only when a rifle is not available,
which is seldom the case. In certain families old bows and arrows are
preserved with great care, and pass on as heirlooms. The bow is still
[526] common in children's games. Boys practise shooting, and have contests in
which they use as a target a mitten suspended from a stick driven into the
764 snow. Bow and arrows are burned on the funeral pyres of men; but in the
majority of cases the funeral bow and arrows are not genuine weapons, but
only imitations. The funeral bow consists of a somewhat bent stave, with
a grip in the middle. At the ends a thong is attached, which represents
the bowstring. The arrows,[1] too, are imitations, with pseudo-feathering at
the butt-end.

237 The Maritime Koryak were considered master bowyers. Simple and
compound bows were manufactured by them. The stave of the simple bow
411 was made of larch or alder; and its concave side was lined with a broad
322 dorsal sinew of a reindeer, which gave it additional elasticity. The stave of the
compound bow was made of two strips glued together, — one of larch and
one of birch, — which gave the bow special strength. The concave side of
this bow, too, was usually lined with sinew, and the convex back with birch-bark.
The grip of a good bow was bent in (Plate XXIX, Fig. 1) so that the
general form recalled to a certain extent the ancient Greek bow with its
two curves joined by a straight short grip. The two horns of the bow, to
which the bowstring was fastened, consisted usually of separate pieces, and
were glued to the ends of the bow-tree, to which they were also tied by
means of sinew.

[237] Bowstrings were made chiefly of thongs of thong-seal hide. One of the
bows in our collection has a bowstring of sinew of the white whale. Krasheninnikoff
says that the Kamchadal used to make bowstrings of whale-sinew.

411 The bow was held vertically, with the belly towards the archer; it
was spanned with the index-finger of the right hand, the three other fingers
being bent in; and the nock of the arrow was held from above with the
thumb. The left hand held the grip of the bow, index-finger and thumb
lightly supporting the arrow-shaft, while the other fingers clasped the bow.
Great strength and skill were required for spanning the bow, and constant
practice was necessary. The bow of strong men was so stiff that a weak
man could not span it.

411 I have mentioned before that long and thin arrows were intended for long
range shooting. These arrows were always feathered to steady their flight. On
322 the other hand, the feathering suggests the idea of an analogy between the
flight of the arrow and that of birds. The arrow-shafts were planed and
smoothed with great care. To remove all crookedness a bone instrument of

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[1] Compare Part I, Fig. 49, *a*, *b*, p. 107.

411 ● 322 semicircular cross-section (Fig. 97) was employed, which served as a plane, knives being inserted into the blade-holes.

411 177 [412] Previous to the introduction of iron, spears were made of bone and stone. The stone spear is still in use, but only for hunting whales (see Fig. 93, p. 552). Traditions are still handed down concerning the bone spears which were used both in war and in hunting. Krasheninnikoff mentions the threepronged spears of the Koryak.[1] Presumably the iron spear superseded the old bone spear, at an early time. The spear played an important rôle in hand-to-hand fights. Tradition relates how the heroes, wielding only a spear, overcame their enemies. In olden times there were also contests with spears. Iron spears[2] are nowadays employed only in bear-hunting and in killing reindeer and dogs for sacrifice.[3] Every herdsman owns an iron spear, which is tied to the right side of the riding-sleigh, which is usually provided with bone rings for suspending it.

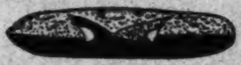

Fig. 97 ([illegible]). Bone Planer. Length, 7.5 cm.

Another weapon used in hand-to-hand fights was the big knife (mainowal). It was about 50–60 cm. long, with a short handle of bone. It was carried in a sheath on the left side, like a short-sword, suspended from a shoulder-strap. It is not known what kind of weapon was supplanted by the iron knife. The Yukaghir, according to tradition, used long battle-knives made of elk-ribs. The big knife is used at present chiefly by the Reindeer Koryak, who carry it on journeys and use it for chopping wood for the fire and for cutting frozen meat; but even in quite recent times this knife served as a weapon.

174 411 Judging from accounts of the customs of former times, the slung-shot must have been used in war. In consisted of a long thong of thong-seal hide, with a stone at its end. In one tradition which I recorded in Nayakhan, in which a battle between two heroes is described, it is related that the warrior from Nayakhan — who was known under the name of "Woman-Snatcher," because he took by violence all the women who pleased him — was once surprised by a hostile hero when he had no bow and spear, but only a slung-shot, which he wore like a belt. While dodging his adversary's arrows, he hurled his slungshot at the latter with such force that the line encircled his body several times and cut him in twain.

411 177 The Russians early introduced a wide-bore flintlock gun for hunting sea-mammals.[4] Powder and lead are supplied by the government and are sold at cost price. The lead bullets are made by the hunters themselves.

Some Koryak own Winchester rifles, which are obtained either directly

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[1] Krasheninnikoff, I, p. 51.

[2] See Fig. 143

[3] See Part I, Plate VII, Fig. 2, opposite p. 80; and Part I, Plate X, opposite p. 96.

[4] For description compare, Bogoras, The Chukchee, Vol. VII of this series, p. 159.

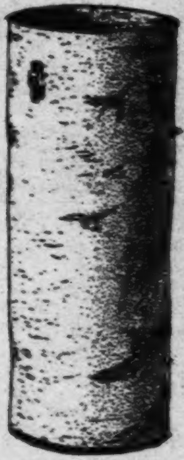

Fig. 104 ([illegible]). Skin Bucket.

271 skin pails. The Maritime Koryak carry a supply of fresh water when hunting
in their skin boats. In order to avoid the necessity of melting snow and ice,
361 in winter, water is generally taken from ice-holes. All the settlements of the
Maritime Koryak are situated on the banks or at the mouths of rivers. The
312 Reindeer Koryak, too, place their tents in river valleys. Plate xxx, Fig. 1,
represents an evening scene by an ice-hole in the village Big Itkana, where
girls and boys come with buckets to fetch water for the
415 night. The water is poured into the bucket with a
wooden scoop. Water-buckets are made of strong thong-
281 seal skin or of aspen or poplar wood. Fig. 104 shows
[313] a skin bucket. Among the Eskimo are found buckets of
the same type, made of seal-skin and sewed together
with sinew-thread.[1] They are carried in a different man-
481 ner however. The Eskimo bucket has a handle made of
171 a strip of leather, like a regular bucket-handle, while the
Koryak bucket has two loops sewed on near the mouth.
To these loops are tied the ends of a broad seal-skin
carrying-strap, which is passed over the forehead, the
bucket resting on the back, — a method of carrying
burdens employed by many Indian tribes.

322 The thick wooden bucket is also cylindrical. The
415 material is supplied by a part of a straight and solid
trunk of an aspen or poplar tree, which is hollowed out
by means of an adze, and finished with a simple knife.
The wooden bottom is inserted from above. Wooden
buckets are carried by women in the same way as seal-skin buckets (see
Plate xxxv, Fig. 2).

415 The wooden bucket is used for many purposes: when hunting sea-mammals, it serves as a receptacle for the harpoon-heads; in the house, seal-oil is kept in it; berries are also kept in both wooden and skin buckets; soup for feeding dogs is carried out of the house in wooden buckets.

The material for spoons and ladles is furnished by the antlers of the
[237] reindeer and the horns of the mountain-sheep. Some are made of wood.
[264] Broth is sipped from deep ladles; thick porridge or gruel is eaten with spoons:
therefore spoons are shallow (Fig. 105, *a*). Bone teaspoons (Fig. 105, *b*) are
[554] made in imitation of imported metal spoons. Wealthy Reindeer Koryak pur-
chase metal table-spoons; some of them even have silver spoons.

Wooden plates, dishes, elongated platters and trays, and wooden and bone dippers, are of the same type as those of the Chukchee,[2] and I shall not dazzling light reflected in spring by the snow-fields. The snow-goggles are made of birch-bark or of wood, with a slit for the eyes.[1] In spring, protection of the eyes is of particular importance to herdsmen, who are constantly in the open air, and to drivers, who undertake to carry merchandise on dog-sledges. 293

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[1] See, for example, Kroeber, The Eskimo of Smith Sound, Fig. 31, p. 288; and Boas, Baffin-Land Eskimo, Fig. 142, p. 99.

[2] See Bogoras, The Chukchee, Vol. VII of this series, p. 189.

Snow-shoes are of two kinds. One kind are short, and are called "crow-feet" (vᴇlvɪ-yᴇgɪt).[2] They consist of a willow frame plaited with a thong. Herdsmen and hunters wear these snow-shoes for walking over uneven ground and hard snow. The other kind are long, and are called tɪ-yᴇgɪt.[3] They are made of a thinly planed aspen board, with pointed ends and tip turned upwards, and are lined underneath with the skin from reindeer-legs, the hair running backward. These snow-shoes are suitable for level regions, and give a good support on soft snow, thanks to their light weight and large surface When "crow-feet" snow-shoes are used, the feet are frequently lifted as in walking, while on long snow-shoes gliding alone is resorted to. The Eskimo who, when hunting seal in winter, have to cross rough and hummocky ice, employ snow-shoes similar to the Koryak "crow-feet;"[4] while the long snow-shoes are used more by hunters like the Tungus or Yukaghir, who hunt wild animals in the forests or river-valleys covered with deep and soft snow. 481 [322]

The Koryak, as a rule, do not make the long snow-shoes themselves, but purchase them from the Tungus. The flesh side of the skin is fastened with fish-glue under the wooden snow-shoes. The edges of the skin are turned over to the upper side. [439]

For smooth and slippery ice, the Koryak tie iron creepers under the soles of their shoes (Fig. 130). In ancient times ice-creepers were made of hard wood or bone.

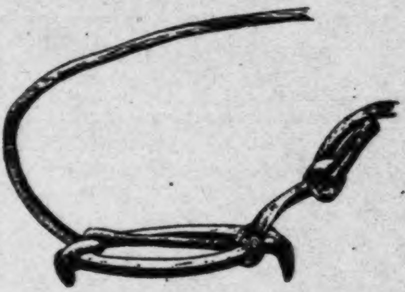

Fig. 130 ([illegible]). Ice-Creeper. Length, 11 cm.

I rarely saw snow-staffs like those of the Chukchee and Eskimo, with attached ring. The Koryak use more often ordinary willow rods, such as are employed in their walks from village to village, from camp to camp, or in foot-races (see Plate XXXVIII, Fig. 1).

Yokes and Carrying-Straps. — For carrying loads when going afoot, Koryak men use a wooden lᴇ'tel. It is usually made of alder or of willow, and consists of a flat stick about 50 cm. long, planed, and somewhat bent so as to fit the chest (Fig. 131), with notches at both ends for attaching the 482

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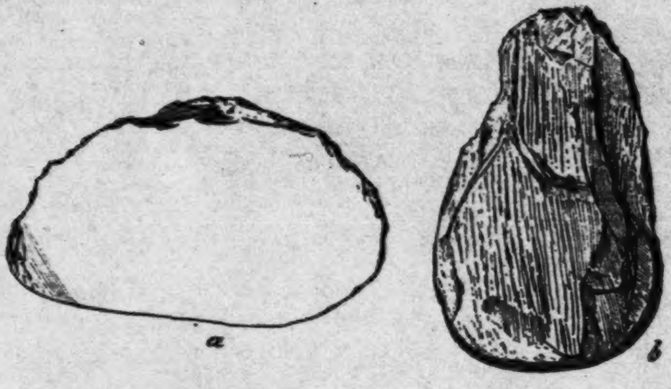
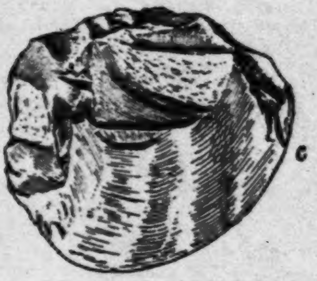
[1] See Bogoras, The Chukchee, Vol. VII of this series, Fig. 192, *a*, *b*, p. 260.

[2] Ibid., Fig. 193, *b*, p. 261.

[3] Ibid., Fig. 193, *a*, p. 261.

[4] See Nelson, pp. 212–214; Boas, Baffin-Land Eskimo, pp. 40, 41.

322 324 412 Nowhere among the Koryak did I find polished axes for wood-chopping. The chipped hatchets mentioned above could not have served this purpose. I found a polished stone axe among the Yukaghir on the Kolyma tundra. Steller[1] says that the Kamchadal used to polish stone implements by grinding them on stones. Dittmar[2] speaks of Kamchadal stone axes with polished blades. It is hard to believe that the Koryak never had any polished stone axes. However, for wood-working, they made more use of bone wedges and of the bone adze.

[301]

Fig. 137, a ([illegible]), b ([illegible]), c ([illegible]). Stone Knives. ½ nat. size.

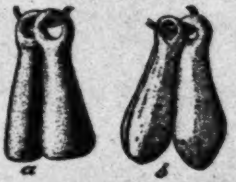


Fig. 138, a ([illegible]), Stone Ear-Ornaments; b ([illegible]), Pendants of Braids. Nat. size.

324 354 Among the stone objects for household use should also be mentioned the stone lamps spoken of before[3] and the head-piece of the fire-drill.[4] Stone lamps are made, for the most part, of sandstone bowlders, in the upper side of which a cavity for the oil is made by means of an adze or chisel. For

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[1] Steller, p. 319.

[2] Dittmar, p. 214.

[3] See Fig. 99, p. 566.

[4] See Part I, Fig. 2, c, p. 33.

326 long, narrow, ornamented, and well finished. The spears for every-day use
412 are not ornamented. They are of simple and rough workmanship. Some
spears are made with a ridge in the middle, which is also often met with
on spears from the Amur region (see, Fig. 195).

Knives for special kinds of work are represented in Fig. 144. The woman's knife, *a* (ñau-wal) is of a sickle-shape, its form being an imitation of the ancient flat knife made of slate.[1]

281 The woman's knife has no sheath. It is kept in the work-bag, together
412 with shavings of skin. With this knife, women cut skins and furs for clothing.[2]
177 The cutting is done on a cutting-board. Koryak women rarely use scissors.
Imported broadcloth for the upper coat, and calico for shirts, are also cut with the knife. Koryak blacksmiths do not manufacture scissors. The large shears shown by Bogoras[3] are the work of Yakut or Amur River blacksmiths. Yakut women cut skin for clothing with such scissors. Nevertheless Koryak women exhibited great joy when we presented them with ordinary narrow iron scissors in return for services rendered, or for submitting to being measured, and immediately pressed them into service.

321 Fig. 144, *b*, represents a knife with a long handle, specially used for
531 carving in bone or wood. However, this knife is also called a belt-knife,
322 and is worn at the belt in a sheath. Its wooden handle is covered with
sheet-brass which is adorned with scratches made with the point of a knife, and evidently representing a technical ornament. Fig. 144, *c*, represents a straight knife (tami'ñu-wal, "working-knife"), and *d* a curved knife (keñı-wal, "curved knife"), used in carving bone and wood, and in hollowing out spoons, ladles, dippers, plates, and dishes.

326 Fig. 145 represents an iron chisel and an iron bow-drill for work in
wood. The chisel (*a*) has a curved edge for making holes. The handle of
412 the drill (*b*) and the bow are made of bone of whale. A similar bow-drill,
only with a smaller point made of steel, is used also in riveting old kettles, and generally for boring in iron.

401 I did not happen to see a pump-drill in use. It is curious that the
[372] bow-drill is called in the Koryak language mi'lgıtine ("fire-procuring"). This
321 points to the fact that the use of the bow-drill for procuring fire had preceded

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[1] Murdoch (The Point Barrow Eskimo, Fig. 106, p. 153) mentions an ancient large single-edged slate knife of this shape, belonging to the Eskimo, and supposes that it was used specially for cutting food. I am inclined to think that it was a woman's knife for cutting skin. Its shape is quite similar to the woman's iron knife of the Koryak, whose blacksmiths doubtless originally imitated ancient stone models. In Mason's article on the woman's knife of the Eskimo (Report of the U. S. National Museum, 1890, p. 411) are collected types of woman's knives of the Eskimo and certain Indian tribes from various localities. These illustrations show that nearly all — both the stone knives, and those of iron made in imitation of the stone ones — have a crescent-shaped blade, just as in the case of the woman's iron knife of the Koryak. Nearly all knives of which illustrations are given by Mason have handles like those of chopping-knives. Only in three of them (see Plates LIX, LXIV, and LXVIII, Figs. 1, 4, 2) do we see a handle on the side, just as on our woman's knife.

[2] Ornamented woman's knives are represented in Fig. 193.

[3] See Bogoras, The Chukchee, Vol. VII of this series, Fig. 151, c, p. 221.

325 The love for silver ornaments is equally strong among the Tungus and
301 the Yakut; among the latter, however, this passion has weakened of late,
under the influence of civilization. They even preferred silver to gold, though
the Yakut well know that gold is the more expensive metal, and though
Yakut silversmiths know how to smelt gold, too. Even the poorest Tungus
women have some silver ornaments on their dresses.

The Koryak, on the contrary, have no particular partiality for silver.
Even the women of wealthy reindeer-breeders do not always possess silver
[517] ornaments. The color of copper or brass is more suited to their taste than
the white color of silver. I remember that in Kamenskoye, when I offered
a Koryak woman the choice between a wide brass ring with a shining shield
and a narrow silver ring, she chose the former. A contrary result was
obtained from the same experiment at another time with a Tungus woman.

The Koryak call silver ñaña-poḷou′ntın ("easily selling iron"). This name, therefore, expresses the superiority of silver over iron. The derivation of the word for "iron" is unknown. At any rate, it was not borrowed from the Russians.

322 Work in Wood and Bone. — Wood and bone objects, from tiny carvings
up to sledges, are nowadays wrought only by means of the above-
177 described iron tools. For fastening the parts of sledges and of the frames of
skin boats, pegs of wood or iron are not used. Everything is tied with
leather straps; but the Koryak are fond of joining their small chests for
holding tea-dishes, or other objects, with steel nails obtained from the Russians.
Household objects of wood have been described before,[1] and carvings will be
discussed later. The netting-needle, and the vice used instead of iron pincers
for finishing iron objects with a file, are made of wood.

321 In addition to the knife for cutting herring,[2] many other tools are made
of bone, antler, or ivory. A thimble and ring of ivory, which protect the
thumb and index-finger in chipping stone tools and working wood with the
285] knife, have been described.[3] Fig. 150, *a*, shows a bone needle used in
weaving baskets of grass. Fig. 150, *b*, represents a bone tool found by me
172 in excavating an old underground dwelling at the mouth of the Nayakhan River.
412 In shape it looks like an imitation of an iron hammer, but with this difference,
that holes have been made in it for tying it to the handle by means
of small leather straps. What its practical application may have been, is
unknown. It is too small to have served for clubbing seals.[4] It was found
with potsherds; and if its shape has been copied from an iron hammer, then
321 the potsherds must be of very recent origin. Fig. 150, *c*, represents a pair
of ear-rings carved out of walrus-tusk with a knife. In shape these ear-rings
are an imitation of the stone ear-rings referred to before (see p. 610), but
differ from them in having linear ornaments.[5]

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[1] See p. 570. [2] See p. 573. [3] See p. 608. [4] See p. 545.

[5] See also bone lamp (p. 567), stool made of antler (p. 568), spoons (p. 571), fish-rake (p. 573), picks and pestle (pp. 577–579).

XI. — ART.[1]

531 The art of the Koryak — expressed in carving, engraving on bone and wood, drawing, and ornamentation of implements — is similar in many respects to the primitive art of ancient man of that epoch of the stone age of southern Europe which is called by the French archæologists "époque magdalénienne."[2] The climatic conditions and the surroundings of the life of man at that period were, according to geological, palæontological, and archæological data, much like those of the life of the primitive peoples of to-day in the polar and near-by regions of the Old and New Worlds.

[114] The resemblance between the graphic art of the Eskimo and that found in the archæologic remains of the cave-dwellers of southern Europe has led some European archæologists to formulate the theory of the origin of the Eskimo from the cave-dwellers of France,[3] — a theory which is far from being well founded. However, the art of the modern Koryak, as regards sculptural carving and dress-ornamentation, is above the art, not only of the cave-dwellers of Europe, but also of the modern Eskimo.

321 322 SCULPTURE. — For carving, the Koryak employ different kinds of wood, the antler of reindeer and the horn of mountain-sheep, bone of whale, teeth of the white whale and the bear, walrus-tusks, and mammoth-ivory. Sometimes the horn of the narwhal, brought from the shores of the Arctic Ocean, is also used. The material most suitable, on account of its solidity and fineness of grain, is ivory of the walrus and mammoth, especially the latter, which is as hard as the former.[4]

321 Both the walrus and the mammoth tusk, before being carved, are put for some time into boiling water, which makes them softer for a while. Walrus-tusk is used to a greater extent than is the mammoth-tusk, because this latter is not found so frequently in the Koryak territory as in the more

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[1] The manuscript for this chapter was prepared by Mr. Jochelson while in Europe, and consequently he has not been able to consult the specimens in his collection. For this reason some matters of detail have been added by the editor, and also the greater part of the discussion relating to the technique and rhythmic arrangement of the designs on clothing, basketry, and rugs. — ED.

[2] See G. et A. de-Mortillet, Le Préhistorique (Paris, 1900), p. 241.

[3] See Hoffman, p. 764.

[4] Mammoth-tusks, which are obtained as the result of occasional palæontological finds, furnish good material for carving if extracted directly from the frozen ground. Tusks so obtained usually have no cracks, are solid inside, clean and white, and not much inferior in quality to ivory. If, however, previous to being found, the tusk has been washed out of the ground and exposed to the air for any length of time, undergoing the process of weathering, it loses its consistency, begins to crack, and assumes a yellow color resembling that of tobacco-juice. Concentric layers are formed on the outside, which gradually separate from the rest of the mass, and crumble, making it unfit for carving-purposes. Articles made of walrus-tusk also lose their original whiteness when exposed to moisture for a long time. Old carvings from walrus-tusk, both of the Koryak and of the Eskimo, also acquire the yellow tobacco-color.

northern regions of the Chukchee territory, — in the tundra along the shores 321
and on the islands of the Arctic Ocean.

The shoulder-blades and vertebræ of the whale are also used for carving. Not being hard, this bone is well adapted for the purpose; but the coarseness of its grain and its dirty-gray color give to the articles made from it an unattractive appearance.

The antlers of reindeer and the horns of mountain-sheep also furnish good material for carving. They are inferior in fineness of grain to ivory. They are sufficiently smooth, and consist of a uniformly hard and tough but not fibrous mass, so that they can be carved and rubbed in all directions. Before being worked, they also are softened in boiling water. Owing to their dark color, however, they do not furnish a material satisfactory to the æsthetic taste of the primitive sculptor, and are used only in the absence of the white walrus or mammoth ivory.

Miniature toy figures of human beings, birds, and other animals, or spoons
ornamented with different figures, are frequently made from reindeer-antler 171
and sheep-horn. It is worth noting, that, according to Hoffman, quite a 321
number of specimens of Eskimo workmanship, upon which both simple forms of ornamentation and pictographic records occur, consist of pieces of reindeer-antler shaped into the desired form, and obtained from the barren-ground or woodland caribou; but no specimens of horn of the mountain-sheep or mountain-goat, which are employed by the more southern Coast tribes, have as yet been found in the Eskimo collections of either the United States National Museum or the Alaska Commercial Company in San Francisco, Cal.[1] Nor are any cases on record of sculptural carvings of animals made of reindeer-antler by Eskimo. Carvings in musk-ox horn are known, however, from the Eskimo tribes of the west coast of Hudson Bay.

Wood as material for carving is employed principally by the Koryak of 322
Penshina Bay, since they do not hunt walrus; but along the shores of Bering Sea, wood-carvings are seldom found, owing to the absence of wood in that region. Nor do we find many small wood-carvings of animals among the Eskimo. The Koryak employ for carving all kinds of wood found in their territory, such as larch, poplar, alder, birch, and stone-pine. As a rule, wood, owing to its fibrous quality and the lack of uniform density in its different layers, cannot be considered good material for sculptural work; and the impracticability of its use is further increased by the primitive instruments employed. The most suitable material, on account of its density, is furnished by the birch-tree and by the roots of the stone-pine; but the latter are so hard that they can be worked only with great difficulty by means of the knife.

Stone is not used by the Koryak as a material for sculptural purposes. 324

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[1] See Hoffman, p. 777.

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323 **CERAMIC INDUSTRIES**--manufacture of pottery and glass; preliminary processing of materials (e.g., cleaning, mixing); shaping (e.g., modeling, use of molds, coiling, blowing); firing; special apparatus (e.g., potter's wheels, kilns); methods of decoration (e.g., glazing, painting, incising); ceramic products not elsewhere described; specialization (e.g., potters, glass blowers); industrially elaborated ceramic manufactures (e.g., bottle making, porcelain manufacture); etc. See also:

Acquisition of raw materials	317	Utensils	415
Brick manufacture	339	Optical instruments	416
Interior decorating	353	Decorative designs and motifs	531

discovering the location of the fireside. I really did find charred logs, coals, 172
stones forming the hearth, potsherds, and remains of tools. Let us now consider the potsherds.

All the potsherds found by me are made of coarse clay, containing fine 172
gravel and pieces of quartz. They are quite thin (4–12 mm.), so that their 323
manufacture has little in common with that of the thick and clumsy clay lamps and unbaked quadrangular kettles of the modern Chukchee and Asiatic Eskimo described by Bogoras.[1] The potsherds found in the excavations are black with soot and fat, and were evidently well baked, as they remained strong and hard, although they had been lying in the wet soil.

The Koryak themselves well know that the potsherds now found are remnants of the clay vessels in which their near ancestors used to cook their food. The Koryak call a clay pot sœku'keña, i. e., "clay kettle" (from sœ, "earth and clay;" and kukeña, "kettle or pot"). Iron kettles are called by them polounto-kukeña.

In a myth[2] it is related how Yiñea-ñeut, when a child, was deserted by her father Big-Raven in an underground house. There she grew up alone, caught birds, and cooked them in the clay pot she found behind the fireplace. The mentioning of pottery in mythology shows that the Koryak themselves assign to pottery an ancient origin.

A fairly accurate idea of the size and form of the whole pots may be gained from the fragments. The restoration of a pot is shown in Fig. 165, *a*. Its mouth has a diameter of about 21 cm., and its height must have been approximately 24 cm., while the walls are 4–8 mm. thick. The pot is moulded with the hand, and the outside bears all over it the impressions of close-woven twined basketry, such as is shown in Fig. 161. Evidently this impression was made by taking a piece of twined fabric in one hand, and pressing it against the moist pot, the twined woof being placed so that the lines run at right angles to the rim. In some fragments of pots the impress of this woven fabric is very distinct. Another fragment in the collection indicates that the pot of which it once formed a part must have had a still larger diameter. The piece is too small to reconstruct the exact form of the pot, but it would seem that the pot was not less than 30 cm. wide at the mouth. All the pots are covered with a heavy layer of soot. A thick potsherd showing a decorated rim is shown in Fig. 165, *b*.

The unquestionable existence of pottery among the Koryak in the recent 171
past presents great interest, in view of the fact that the former existence of 323
pottery among other so-called palæ-Asiatic peoples has been disputed by many writers.

Let us consider, first of all, the Kamchadal, a neighboring tribe kindred to

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[1] See Bogoras, The Chukchee, Vol. VII of this series, Figs. 102—104, pp. 185, 186.

[2] See Part I, p. 306, No. 114.

[1] See Steller, p. 322; Krasheninnikoff, II, p. 45.

171 323 the Koryak. True, Steller and Krasheninnikoff[4] visited them after they had been considerably influenced by Russian culture; but, in speaking of the ancient Kamchadal method of cooking food, they mention only boiling in wooden troughs by means of red-hot stones, and there is nowhere in the writings of these authors a reference to clay vessels. Schrenck considers the absence of pottery among the Kamchadal as proved.[1]

171 252 I have found accounts which stated that the Koryak also used red-hot stones for boiling. However, in these statements I do not see any contradiction to the fact that there are traces of the existence of pottery among them. The latter, to my mind, seems a later invention than boiling by means of red-hot stones; but, even after the invention of pottery, cooking by means of red-hot stones might have continued.

171 174 323 But as iron kettles were acquired, the manufacture of clay pots probably disappeared earlier than the custom of boiling with stones in troughs, as may have been the case with the Kamchadal. Witsen[2] states, based on information given by Cossacks, that the Kamchadal used to make clay vessels. In an old underground Kamchadal dwelling, Dittmar found "small clay vessels" of most primitive workmanship. "The clay crumbled under the hands, it had evidently been badly (if at all) baked," says Dittmar. As the pots were saturated with blubber, Dittmar thinks it possible that they had been lamps, and not cooking-pots;[3] but this opinion may be offset by the shape and size, especially the depth, of the pots found.[4] Besides, in another passage, Dittmar quotes the tale of an old Kamchadal who brought to him the stone implements that he had dug out

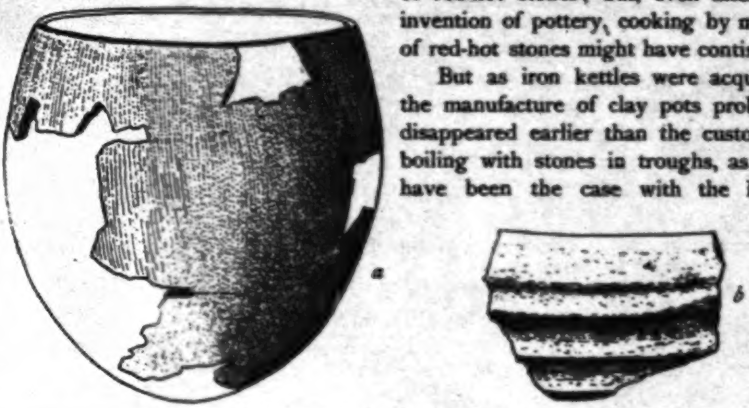

Fig. 165, *a* ([illegible]), Pottery Vessel; *b* ([illegible]), Rim of Pottery Vessel.

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[1] Schrenck, II, p. 140.

[2] See Witsen, Noord en Oost Tartarye, 1705, p. 673.

[3] See Dittmar, p. 213.

[4] Dittmar gives the following measurements of the pots: upper diameter, 12 cm.; lower, 10 cm.; maximum width, 14 cm.; depth, 10 cm. This vessel, therefore, had an aperture smaller in diameter than the middle part, and its bottom was still smaller than the aperture. Clay lamps are of different shape (see Bogoras, The Chukchee, Vol. VII of this series, Figs. 102, 103, pp. 185, 186; Nelson, Plate XXVIII). Nelson gives 2¾ inches (i.e., less than 7 cm.) as the depth of two lamps (Nelson, p. 64). The Koryak stone lamps (see p. 566) are 4–6 cm. deep.

171 of ancient underground houses, and who said that potsherds of coarse clay
174 vessels are often found among other objects in excavating ancient underground
323 dwellings on the eastern coast of Kamchatka.[1]

Lastly, the Gishiga Cossacks, who often visit Kamchatka on duty, told me personally that they came across the same kind of sherds of clay pots as I found in the ruins of ancient Koryak houses.

At present neither the Gilyak and Ainu, nor the Kamchadal and Koryak, make clay pots. Schrenck expresses the opinion that even in antiquity this art was unknown to the Gilyak and Ainu.[2] Concerning the statement of the Japanese traveller, Mamia Rinso, that the Gilyak on Saghalin manufactured clay ware resembling that of the Chinese and Japanese, Schrenck supposes that this art was introduced by the Chinese and Japanese at a quite recent date, and has been lost again. On the other hand, Schrenck finds that the potsherds collected by Pfeiffer, Lopatin, and Polyakoff in various parts of the Amur region and in Saghalin, samples of which were in his hands, were so old as to have no ethnological connection whatever with the tribes inhabiting the region at the present time.[3]

114 Leo Sternberg, the latest student of the Gilyak tribe, in his brief pre-
174 liminary sketch of the Gilyak, published in the "Ethnographical Review,"[4] ex-
323 presses an opinion concerning the ancient Gilyak pottery identical with that
of Schrenck. In his opinion, the Gilyak were not familiar with pottery. Further on, I shall briefly touch upon his arguments. The Gilyak themselves call the remains of the ancient underground dwellings on Saghalin Island, where the potsherds were found, kugi-tulkč, which means "Ainu little pits;" i. e., the Gilyak attribute them to the Ainu. Following the course of his arguments, Sternberg further supposes that these little pits did not belong to the ancestors of the present Ainu either, for the Saghalin Ainu themselves attribute them to another people by the name of Tonchi.[5]

Here I reach a question interesting in the highest degree, — the question, Who were the ancient inhabitants of Japan and of the underground dwellings in Yezo and other places, — the Ainu, or another pre-Ainu people? This question divides Japanese and other investigators into two camps. Of the Japanese scholars, Professor Koganei especially, espouses the former view; Professor Tsuboi, the latter. Concerning Saghalin, my friend Dr. Sternberg apparently seems to side with Tsuboi; while Dr. Laufer, a member of our

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[1] See Dittmar, p. 189.

[2] See Schrenck, II, p. 139. Schrenck, by the way, expresses the opinion that pottery was unknown to any of the so-called palæ-Asiatic peoples, with the exception of the Eskimo. He supposes that the Eskimo came to America from Asia, and classes them among the palæ-Asiatics; but this opinion, as we see, is utterly refuted by the facts.

[3] See Schrenck, II, p. 141.

[4] See Sternberg, The Gilyak (Ethnographical Review, published by the Ethnographical Section of the Imperial Society of Friends of Natural History, Anthropology and Ethnography, Moscow, 1904, Parts 1, 2, 3).

[5] Ethnographical Review, 1904, I, p. 5.

114 expedition, expresses views in harmony with Professor Koganei's.[1] Of the
174 recent works devoted to this question, one of especial interest is Professor
323 Koganei's excellent article, "Ueber die Urbewohner Japans."[2]

I can touch upon this question only so far as it bears upon pottery.
323 On the one hand, remnants of primitive pottery have been discovered on
171 the Chukchee Peninsula, in Baron Korff's Bay,[3] in Kamchatka, on the coasts
of the Okhotsk Sea and its bays, on the Kurilian Islands, at the mouth of
174 the Amur, on the islands Saghalin and Yezo; on the other hand, the Eskimo
of northwestern America even now make clay pots, and have left traces of
this art which existed among them in the past.[4]

Whether pottery was known to the Aleut, we do not know as yet. Veniaminoff says that the clay vessels he saw among the Aleut had been obtained by them from the Russians.[5] In the description of the articles found by Dall[6] in the grave caves of the Aleut, we find no remains of clay vessels; but until archæological investigations have been undertaken in the Aleutian Islands, it cannot be asserted that pottery was unknown to the Aleut. Judging by the results of our expedition, the Indians of the North Pacific coast never had pottery.[7]

Territorially speaking, we have thus found, so far, that pottery in its primitive stage was widespread on the northern coasts of the Pacific Ocean from the islands of Japan around almost to the coast strip of southern Alaska.

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[1] See Berthold Laufer, Die Angeblichen Urvölker von Yezo und Sakhalin (Centralblatt für Anthropologie, Ethnologie und Urgeschichte, Jena, 1900, Band V, Heft 6).

[2] Mittheilungen der deutschen Gesellschaft für Natur- und Völkerkunde Ostasiens, Tokio, 1903, IX, pp. 297-330.

[3] Bogoras (The Chukchee, Vol. VII of this series, p. 186) says that certain potsherds found by him in the ancient "jaw-bone houses" are thinner than the above-mentioned clay lamps and kettles, and point to another type of clay pots in the past.

[4] Thus we have Baron Wrangell's statements of the beginnings of the nineteenth century, that the Eskimo in Alaska made pots (Wrangell, Statist. und ethnog. Nachrichten über die Russischen Besitzungen an der Nordwestküste von Amerika, St. Petersburg, 1839, p. 147); Dall's information concerning the seventies of the last century (Dall, Alaska and its Resources, London, 1870, p. 218) and the present-day information of Nelson (Nelson, The Eskimo about Bering Strait, pp. 201, 202). Concerning the inhabitants of the island Kadyak, we possess the following information, dating from the beginning of the last century: "From clay they make fire-pots, in which they melt whale fat. Formerly they could also bake pots, but now this art is lost, possibly for the reason that they found our kettles more convenient" (see Voyages to America of the Naval Officers, Khvostoff and Davydoff, St. Petersburg, 1812, Vol. II, p. 104). Krasheninnikoff (II, p. 305) states that the Konyag of Kadyak cooked meat in clay pots. At the end of the last century Murdoch found on Point Barrow fragments of pottery which, according to him, existed earlier than iron kettles (Murdoch, pp. 91, 92). G. B. Gordon, in his Notes on the Western Eskimo (Transactions of the Department of Archæology, University of Pennsylvania, 1906, Vol. II, Part I, p. 83), based on data collected by the expedition sent to Alaska in the summer of 1905 by the Museum of the University of Pennsylvania, states that at present the art of pottery has died out among the western Eskimo, but the older people still remember the time when lamps and cooking-vessels were made of clay. Plates XXIII and XXIV of the same paper show different types of clay vessels of the western Eskimo.

[5] Veniaminoff, Notes on the Unalashka District, Part II, p. 239.

[6] Dall, On the Remains of Prehistoric Man obtained from Caves in the Catherine Archipelago, Alaska Territory and especially from the Caves of the Aleutian Islands (Smithsonian Contributions to Knowledge, 1878, Vol. XXII).

[7] This conclusion is based on the results of the excavations made by Mr. Smith at the mouth of the Fraser River, in the southern part of Vancouver Island, and on the coast of Washington; but it would be very important to extend the archæologic investigations also to other parts of the coast-line between the Alaskan Eskimo and Columbia River and the interior Athapascans, in order to draw a final conclusion.

As to the question what tribes have left remains of this art, there is still disagreement in the majority of cases. That the clay pots, of which potsherds have been found by me in Koryak territory, were made by the recent ancestors of the Koryak, there can be no doubt. The same may be said in regard to the Alaskan Eskimo, but here is involved the question of their original gradual distribution. So far as mythology is concerned, I have accepted Professor Boas's theory that the Eskimo came to the coasts of the Pacific Ocean from the east.[1] In questions of somatology we have some data pointing to the change of the physical type of the Eskimo from the east westward, as we approach nearer and nearer to the Pacific Ocean.[2] 323 171 174

The central and eastern Eskimo had lamps of soapstone, but we find no indication that they now can or formerly could make clay pots. If we consider as correct the theory that the Alaskan Eskimo came from the east, and that their physical nature and their traditions have changed in the new locality under the influence of the Indians, then they may have adopted the art of making pottery, too, after their arrival on the coasts of the Pacific Ocean, from the former aborigines, as their eastern fellow-tribesmen evidently did not know this art.[3] I should remark that I bring forward these considerations only as an attempt at solving the question concerning the primitive culture of the Asiatic-American tribes.

Regarding the Ainu, it is impossible, it seems to me, not to agree with the considerations of Koganei, that the pits on Yezo, Saghalin, and the Kurilian Islands, which contain the potsherds now holding our interest, are remnants of the dwellings of the ancestors of the modern Ainu. For the Gilyak, we must for the present accept the opinion of Sternberg, — the best authority on this tribe, — who argues that the Gilyak are new-comers on Saghalin Island and at the mouth of the Amur, and suggests that they may have been neighbors of the Aleut.[4] Still one cannot help remarking that Sternberg's chief arguments offered as proof that the clay potsherds from the "little pits" on Saghalin belong to neither the ancestors of the Gilyak nor to the ancient Ainu,[5] are identical with the arguments of Tsuboi concerning the last-mentioned tribe alone.[6] These arguments consist in the following. In the myths there are no allusions whatever to the former use of pottery by the Gilyak or Ainu; on the contrary, the traditions of both tribes attribute this art to other tribes, the Gilyak attributing it to the Ainu. The Ainu of 114 174 323

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[1] See Part I, p. 359.

[2] See Dina Jochelson-Brodsky, Zur Topographie des weiblichen Körpers nordostsibirischer Völker (Doctor's Dissertation of the University of Zürich), Braunschweig, 1906.

[3] Unfortunately, no archæological researches have been made in the territory of the northern Athapascans and Tlingit.

[4] If this supposition should prove correct, the finding of remains of pottery on the Aleutian territory would be of importance.

[5] See Sternberg, The Gilyak (Ethnographical Review, I, p. 5).

[6] See Koganei, Ueber die Urbewohner Japans, pp. 388, 393.

114 174 323 Yezo, on their part, attribute this art to the mythical tribe Koropokguru, while the Ainu of Saghalin claim that the mythical tribe Tonchi made the pots which have been found in the ruins of underground dwellings.[1] He also thinks that if the Gilyak and Ainu had known this art before, it would not have been lost.

I shall not expatiate upon the linguistic interpretation of the words "Tonchi" and "Koropokguru," which may be found in the works referred to.[2] I wish only to remark that oral tradition cannot take the place of history if it does not agree with the data of archaeology, physical anthropology, linguistics, and comparative culture. In the last-named respects much remains to be done, but what has already been done with reference to the Ainu completely proves that the Koropokguru are the ancestors of the present Ainu. It is enough to read the description of the contemporary underground dwellings of the Ainu on Shikotan to come to the conclusion that after their destruction they would form the same kind of pits as we still find on Yezo.[3] It is quite possible that the names handed down by tradition of what purports to be vanished tribes are but the ancient names of territorial groups or clans of one or another of the now existing tribes, just as I have been able to prove concerning the so-called vanished tribes of the Khodintsi, Omoki, Kongienisi, etc., of the Kolyma region,[4] that they are not vanished tribes, but ancient local names of the divisions of the Yukaghir tribe.

The present-day absence of pottery among the Ainu and Gilyak cannot be proof that they never had it formerly, either. We possess many proofs, and among others my own data collected among the Koryak, that pottery may disappear with the advent of metal utensils.[5] Likewise nothing is proved by the absence of any mention of pottery in the myths. The memory of peoples that possess no knowledge of writing is, on the whole, very short with reference to facts relating to their past life. To give an instance, I was surprised when the Arctic Yakut who came to the extreme north very recently did not know, when questioned by me on this point, that their ancestors had

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[1] It should be remarked that so far no traditions ascribing them to mythical tribes have sprung up with reference to the potsherds found in 1865 in the excavations of underground dwellings at the mouth of the Amur (see Schrenck, II p. 141), and to the remnants of such dwellings between Khabarovsk and the mouth of the Amur (see Laufer, Die angeblichen Urvölker von Yezo und Sakhalin, in Centralblatt für Anthrop., Ethnol. und Urgeschichte, 5. Jahrgang, Heft 6, p. 329).

[2] See Laufer, Die angeblichen Urvölker von Yezo und Sakhalin, etc., p. 325; Koganei, Ueber die Urbewohner Japans, pp. 314, 315.

[3] See Grimm, Beitrag zur Kenntnis der Koropokguru auf Yezo u. Bemerkungen über die Shikotan-Aino (1892); Hitchcock, The Ancient Pit-Dwellers of Yezo, Japan (Washington, 1892).

[4] See Jochelson, On the Question of the Vanished Tribes of the Kolyma District (Bulletin of the East Siberian Section of the Russian Imperial Geographical Society, Irkutsk, 1897, Vol. XXVIII, Part I).

[5] On the disappearance of pottery among the eastern Indians of North America, upon the arrival of the whites, see Charles Rau, The Archaeological Collection of the United States National Museum (Smithsonian Contributions to Knowledge, Washington, 1876, Vol. XXII, p. 73). Concerning the inhabitants of the island Kadyak and the western Eskimo, see p. 642, Footnote 4. There are indications that in southern Siberia, primitive pottery was forgotten and lost by the local inhabitants about the time of the arrival of the Russians (see D. Klements, The Antiquities of the Minusinsk Museum, Tomsk, 1886, p. 65).

manufactured clay pots, and not even that their more southerly fellow-tribesmen 323
are still making pottery. That the present pottery of the Yakut, still made
with the hands, without the potter's wheel and without knowledge of the art 114
of glazing, is of ancient origin, has been completely proved by Sieroszewski 174
in his work on the Yakut.[1]

After this chapter had been written, I had the pleasure of meeting in Berlin Dr. E. Baelz, formerly professor at the University of Tokio. He had the kindness to place at my disposal the manuscript of his most interesting paper, "Zur Vor- und Urgeschichte Japans,"[2] in which he discusses the Ainu question. Professor Baelz is in full accord with Professor Koganei, and thinks that the remains of underground dwellings and the primitive pottery of the stone age in Japan belong to the ancestors of the present Ainu. He states, that according to Batchelor, the best authority on the Ainu language, the word "Koropokguru" means simply "inhabitants of underground dwellings." The Ainu themselves have traditions relating to the former use of pottery; and among the Kurilian Ainu clay pots like those of the stone age are in use even now. Clay figures representing men, which were found by Professor Baelz together with potsherds and other remains of the stone age, are represented with full beards like those of the Ainu. Professor Baelz's theory on the origin of the Ainu offers, however, great difficulties. He maintains their relationship to the Caucasian race. If this theory is accepted, we must assume that the Ainu, after reaching their present seat, adopted the material culture of the palæ-Asiatic tribes and of the American tribes of the northern shore of the Pacific Ocean.

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[1] See Sieroszewski, The Yakut, p. 377.

[2] Published in Zeitschrift für Ethnologie, 1907, pp. 281–310.

324 This may probably be explained by the fact that the Koryak practised the art of polishing stone very little. As is well known, but few traces of the working of stone for artistic purposes have been found in palæolithic stations of Europe. Among the Eskimo carvings in the National Museum at Washington, we find some specimens of animal figures made from soapstone and flint.[1]

Nor do the Koryak use clay for moulding figures, and we do not know
323 if they ever used it for that purpose. In the excavations of ancient dwellings
532 of the Maritime Koryak, mentioned before, I found traces of their former art in pottery which disappeared with the introduction of metallic utensils; but no remains of clay toys have been found.[2]

There is no doubt that among the works of art of North America, the Eskimo carvings of animals resemble those of the Koryak most closely. The Eskimo, the Koryak, the Kerek, and the Chukchee are the only primitive tribes among whom miniature sculpture has been so strongly developed.[3]

517 All the tribes mentioned here use the same technical processes in carving.
Their carvings are realistic in character, are of small or even miniature size,
532 and to a great extent are made as much for the pleasure which the carvers
171 derive from their work as for the satisfaction of the æsthetic tastes of the people. The difference between the Eskimo and Koryak carvings is, that the latter are less available for practical application than the former, and are of greater artistic worth. In that regard the Chukchee carvings resemble more closely those of the Eskimo, judging from the collection furnished by our Expedition and from the collection of the Ethnographical Museum of the Imperial Academy of Sciences in St. Petersburg.[4] Even the Kerek carvings are inferior to those of the Koryak in their finishing touches. The Chukchee and the Kerek carvings still further resemble those of the Eskimo, in that they are more frequently decorated with engravings, consisting chiefly of dots and lines, than those of the Koryak.

532 The plastic art of the Indians of the North Pacific coast, in so far as it
171 is expressed in carving, is entirely different from that of the Koryak and

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[1] See Murdoch, pp. 398, 399.

[2] Nelson obtained on the Lower Yukon, where the art of pottery was formerly developed, a pair of rudely modelled clay dolls (see Nelson, Fig. 126 on p. 342, and p. 343). In the excavations of the ancient Ainu underground dwellings were found, among the remnants of pottery, clay figures of men. Some figures collected by Professor E. Baelz are now in the Museum für Völkerkunde of Berlin (see p. 645). It is possible that the Koryak made figures of unbaked clay, and that therefore no trace is left of them, as articles made of unbaked clay crumble in the moist ground. The avidity with which the Koryak seize upon every material fit for sculpture may be judged from the fact that their children, as soon as they convinced themselves that the plaster I used could be cut with the knife, started to make toy dishes and animal figures from the pieces which fell on the ground while I was making my masks. Before trying the use of the knife, however, they touched the plaster with their tongues, to see if they could make more palatable use of it.

[3] Among European nations, the Swiss are known for their miniature sculpture from wood and ivory. Really artistic articles may be found quite frequently among the Swiss products; but as a rule, their figures of animals, notwithstanding the careful and detailed finish, produce a less vivid impression than some of the crude figures of the Koryak, in which the most characteristic posture of the animal is brought out.

[4] See Bogoras, Chukchee Material Life, Plates XX, XXI.

Chukchee RY2
Koryak RY4 ●
Aleut NA6
Eskimo ND2

/450 cont./

000 was a train-oil lamp shaped by hand. Also, with regard to the
G
323 Koryak and Chukchee, the aforementioned travelers, as well as
171 Nordenskjöld and others, know only of the making of eating and
K
C drinking vessels out of wood, bone, etc., but do not report any
● 323 of fired clay. The earthenware pots that the members of the Vega
415 Expedition saw among the Chukchee were of American or European
C
[439] origin (4). Similarly, Weniaminof notes about the Aleut that they
000

C
[113] 4. Nordenskjöld, Die Umsegelung Asiens und Europas auf der Vega, Leipzig, 1882, Vol. II, p. 122.

G
323 Similarly, Weniaminof notes about the Aleut that they
171 had only such earthenware utensils, cups, plates, etc., as they
A
323 had occasionally obtained from the Russians (5). The making of
439

A
[113] 5. Veniaminov", Zap. ob" ostrov. Unalashkinskago otdiela, Part II, p. 238.

G The making of
323 pottery is carried on as an ancient art by only one Paleo-Asiatic
171 people, the Eskimo of northwestern America, for instance, on
E
323 Kadjak Island (6), along the Kuskokwim and Kwichpak (7), on

E
[113] 6. Dvukratn. putesh. v" Ameriku morsk. ofitser. Khvostova i Davydova, St. Petersburg, 1812, Vol. II, p. 104.

E
[113] 7. Wrangell /Vrangel'/, "Statist. und ethnogr. Nachrichten über die Russ. Besitz. an der Nordwestküste von Amerika /Statistical and Ethnographic Reports on the Russian Possessions on the Northwest Coast of America/" (Beitr. zur Kennt. des Russ. Reichs, ed. by Baer and Helmersen, Vol. I, p. 147). Zagoskin", Peshekhodnaia opis' chasti russk. vlad. v" Amerikie /A Foot Traveler's Description of Part of the Russian

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324 **STONE INDUSTRY**--methods of shaping stone (e.g., chipping, pecking, grinding); materials used; products not elsewhere described; special stone industries (e.g., carving of tombstones and monuments); specialized personnel and organization; etc. See also:

Work in gems	306
Quarrying	316
Masonry	333
Cement manufacture	339
Monuments	349
Tools	412
Moving of heavy weights	483

A stone bone-breaking set is one of the indispensable belongings of every 412 household. It consists of a large stone slab or anvil, called ıļño'ñın ("board-stone") and a stone pestle (cipe'îñın) or hammer. Both are selected from 324 among the water-worn pebbles on the banks of rivers. The Koryak themselves do not work them into shape. The board-stone must have one smooth, even surface; and the hammer, an oblong shape, round at the ends. Two hammers are shown in Fig. 102. On the board-stone, bones are crushed with 252 412 [372]

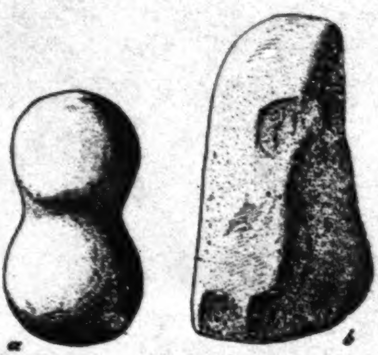

Fig. 102, a ([illegible]), b ([illegible]). Stone Hammers. Length, 12 cm., 17 cm. a, From Kamenskoye; b, From Tilqai River.

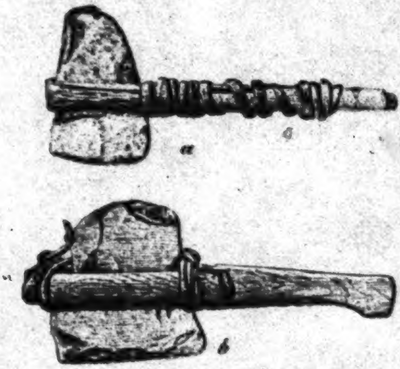

Fig. 103, a ([illegible]), b ([illegible]). Stone Hatchets. Length, about 30 cm.

the hammer to extract the marrow or to boil out the tallow for lighting; hard dried fish is softened on it or pounded with berries; roots are pounded for cooking gruel and for making puddings; and meat with fat is pounded for cutlets.[1]

Edible herbs, chiefly willow-herb (*Epilobium angustifolium*), are chopped [137] on the stone anvil by means of stone hatchets. Two of these are shown in Fig. 103. The cutting-edge is sharpened by chipping, just like the edges of stone arrows and knives.[2] The handle of the hatchet *a* is made of a willow rod split in two and bent double, the hatchet being set between the two bent halves, the free ends of which are tied together with thongs. Another method of hafting is shown in *b*. The wooden handle is placed on one side of the hatchet, while on the other a short stick is applied, the ends of which are tied firmly to the handle. The grooved stone axe is held firmly between the two sticks.

The Koryak drink much water. They often get up in the night to take 271 a drink of cold water, of which they always have a supply in wooden or

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[1] See p. 578.

[2] See Chapter X.

X. — MANUFACTURES.

324 172 Work in Stone. — To judge from the stone implements preserved, it would seem that the Koryak, prior to their acquaintance with metals, had not fully acquired the art of making polished stone implements. At the present time, — which is still a period of transition from the use of stone to that of metal, — the stone tools still in use among them are mainly made by chipping.

324 With the exception of the stone tables and hammers, which are used without any artificial finish, just as they are found in the beds and on the banks of rivers, all the stone implements[1] mentioned before (see Figs. 135–137) are fashioned by means of chipping. Stone hatchets, spear-heads, harpoon-points, and scrapers for dressing skin, which are still in use, are roughly chipped out with small bone hammers (Fig. 134). The stone to be chipped is held in the left hand, the hammer in the right, and with its broad end the blows are delivered from above downwards on the edges of the stone. The thumb of the left hand is protected against accidental blows of the bone hammer by a bone thimble, and the forefinger by a ring[2] (Fig. 134, *b*, *c*).

[412]

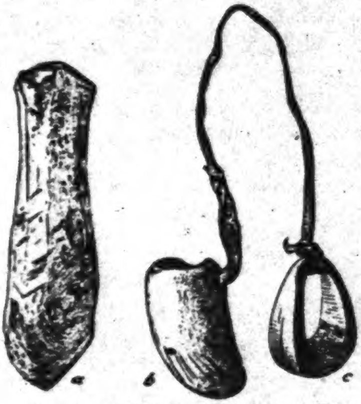

Fig. 134, *a* ([illegible]), Bone Flaker; *b*, *c* ([illegible]), Finger-Protectors. ½ nat. size.

In the numerous irregular scratches on the broad end of the hammer may be discerned the traces from blows on the uneven stone edges. Bone rings are at present also used for protecting the fingers in carving wood with iron knives.

777] 172] Formerly stone arrow-heads were also made with the bone flaker here described. Fig. 135 shows three flint arrow-points. Such points have now gone out of use. Those in my collection were either obtained from people who preserved them as amulets or as keepsakes, or they were found by me in excavating ancient underground dwellings.

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[1] See p. 569.

[2] It is interesting to compare with the small bone hammer of the Koryak a similar flaker for making arrow-points, of the Eskimo of Baffin Land, and their method of protecting the left hand against blows when chipping (see Boas, Baffin-Land Eskimo, Fig. 83, p. 63).

Fig. 136 represents a spear-head (*a*),[1] a harpoon-point (*b*), and an unfinished harpoon-point (*c*) of flint. The arrows and harpoon-heads are mostly made of flint, but partly of obsidian, which was formerly imported from Kamchatka. Spear-heads are made of flint as well as of quartz. Hatchets (see Fig. 103) and stone skin-scrapers are made mostly of quartz pebbles. The hatchets are chipped very little. The Koryak use for this purpose flat stones with somewhat sharp edges, found in the river-valleys. 324 411

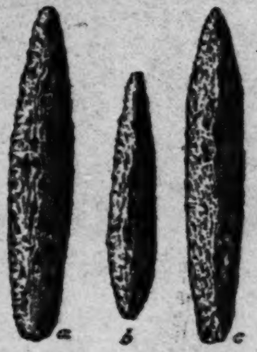

Fig. 135.

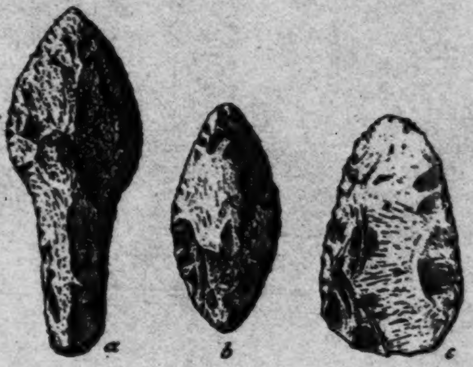

Fig. 136.

Fig. 135, *a* ([illegible]), *b* ([illegible]), *c* ([illegible]). Flint Arrow-Points. ½ nat. size. *a*, From an old dwelling at Nayakhan; *b*, *c*, From Kamenskoye.

Fig. 136, *a* ([illegible]), *b* ([illegible]), *c* ([illegible]). Flaked Stone Points. ½ nat. size.

Fig. 137 represents ancient slate knives for skin-cutting and other household work. The knives shown in *a* and *b* were found by me in excavating the ancient dwellings mentioned above; while *c* was found in the possession of a Koryak woman in the village of Kamenskoye, who treasured it as a keepsake. In the village of Kuel I found a fragment of such a knife used as a scraper. These relics exhibit traces of grinding and polishing. According to the Koryak, the edges of the knives were whetted with a flint or bone tool. The more or less even surfaces of the sides of the knives may be explained as due to the nature of the material, which readily splits into thin plates. 172 324 412

Sandstone ear-ornaments (Fig. 138, *a*) and pendants of braids (*b*) have also been finished by grinding. Stone ornaments of this kind are still worn by women in the villages of the Maritime Koryak. Nowadays they are finished with iron knives, and the perforations are bored with iron drills. Stone ear-rings are suspended from the ears by sinew-thread, or brass rings are passed through them, which are then put into the ears. 324 301

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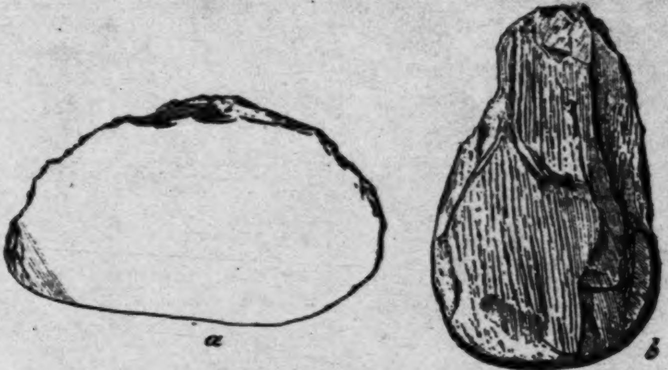
[1] A stone spear with shaft is shown in Fig. 93, p. 552.

322 324 412 Nowhere among the Koryak did I find polished axes for wood-chopping. The chipped hatchets mentioned above could not have served this purpose. I found a polished stone axe among the Yukaghir on the Kolyma tundra. Steller[1] says that the Kamchadal used to polish stone implements by grinding them on stones. Dittmar[2] speaks of Kamchadal stone axes with polished blades. It is hard to believe that the Koryak never had any polished stone axes. However, for wood-working, they made more use of bone wedges and of the bone adze.

[301]



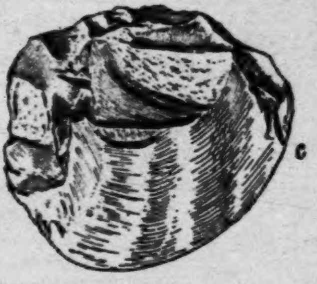


Fig. 137, a ([illegible]), b ([illegible]), c ([illegible]). Stone Knives. ½ nat. size.

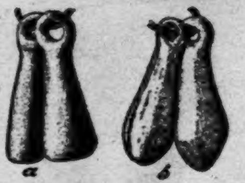


Fig. 138, a ([illegible]), Stone Ear-Ornaments; b ([illegible]), Pendants of Braids. Nat. size.

324 354 Among the stone objects for household use should also be mentioned the stone lamps spoken of before[3] and the head-piece of the fire-drill.[4] Stone lamps are made, for the most part, of sandstone bowlders, in the upper side of which a cavity for the oil is made by means of an adze or chisel. For

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[1] Steller, p. 319.

[2] Dittmar, p. 214.

[3] See Fig. 99, p. 566.

[4] See Part I, Fig. 2, c, p. 33.

the head-piece of the fire-drill a small rounded quartz pebble is chosen; and on one side of this a socket for the upper end of the shaft of the drill is made by means of a drill (at present an iron drill).[1] 324 354

I have spoken before of the large flat stones which are used, without any artificial finish, for tables,[2] — one measuring 77 cm. in length and 48 cm. in width; another ($\frac{70}{1110}$), 38 cm. in length and 28 cm. in width. It is interesting to compare these stone tables with the unworked sandstones found by Dr. H. Grimm in the excavations of ancient underground dwellings, evidently of the Ainu, on the island of Yezo.[3] Grimm does not suggest the use to which these stones may have been put by the former inhabitants of the underground dwellings. [352]

The similarity of these dwellings, and the remains found in them, to the underground Koryak dwellings and the ancient utensils of the tribe found in excavations and preserved among them as keepsakes, suggests that the Maritime Koryak participate in a type of material culture formerly widespread over a considerable portion of the coasts and islands of the northern part of the Pacific Ocean. The flat sandstones described by Grimm seem to me to have done the same service among the former inhabitants of the underground houses on Yezo as the analogous stones still do among many Koryak, chiefly the Maritime Koryak of Penshina Bay. 174

WORK IN IRON. — At present Paren and Kuel, villages of the Maritime Koryak of Penshina Bay, are renowned for their manufacture of iron tools. The knives, axes, and spears of the Paren and Kuel blacksmiths, not only find a market among the Koryak and Chukchee, but even find their way to Kamchatka and to the neighboring Tungus. 412 177 326

Here two questions arise, — when did the Koryak become acquainted with iron implements, and from whom did they learn the art of the blacksmith?

In Kamchatka, Krasheninnikoff[4] heard stories to the effect that the Kamchadal were familiar with iron implements before they ever met the Russians. According to these stories, the Kamchadal used to get Japanese iron objects by barter from the Kurilians. Of course, this is possible; but there cannot have been any great amount of barter and no regular exchange between these tribes at that period. In this manner iron tools could have come into the hands of the Kamchadal in but very limited quantities, and would have become the property of a few fortunate families only. It seems important to note that while the tribes of northeastern Asia were still in the stone age, not only were nations as highly civilized as the Japanese and Chinese acquainted with iron, but even certain tribes of the Amur region, northern regions of the Chukchee territory, — in the tundra along the shores and on the islands of the Arctic Ocean. 321

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[1] See Part I, Plate VI.

[2] See pp. 569, 608.

[3] See H. Grimm, Beitrag zur Kenntniss der Koropokguru auf Yeso und Bemerkungen über die Shikotan Aino (Mittheilungen der Deutschen Gesellschaft für Natur- und Völkerkunde Ostasiens in Tokio, Band V, pp. 369–373).

[4] See Krasheninnikoff, II, p. 49.

The shoulder-blades and vertebræ of the whale are also used for carving. Not being hard, this bone is well adapted for the purpose; but the coarseness of its grain and its dirty-gray color give to the articles made from it an unattractive appearance.

The antlers of reindeer and the horns of mountain-sheep also furnish good material for carving. They are inferior in fineness of grain to ivory. They are sufficiently smooth, and consist of a uniformly hard and tough but not fibrous mass, so that they can be carved and rubbed in all directions. Before being worked, they also are softened in boiling water. Owing to their dark color, however, they do not furnish a material satisfactory to the æsthetic taste of the primitive sculptor, and are used only in the absence of the white walrus or mammoth ivory.

Miniature toy figures of human beings, birds, and other animals, or spoons ornamented with different figures, are frequently made from reindeer-antler 171 and sheep-horn. It is worth noting, that, according to Hoffman, quite a 321 number of specimens of Eskimo workmanship, upon which both simple forms of ornamentation and pictographic records occur, consist of pieces of reindeer-antler shaped into the desired form, and obtained from the barren-ground or woodland caribou; but no specimens of horn of the mountain-sheep or mountain-goat, which are employed by the more southern Coast tribes, have as yet been found in the Eskimo collections of either the United States National Museum or the Alaska Commercial Company in San Francisco, Cal.[1] Nor are any cases on record of sculptural carvings of animals made of reindeer-antler by Eskimo. Carvings in musk-ox horn are known, however, from the Eskimo tribes of the west coast of Hudson Bay.

Wood as material for carving is employed principally by the Koryak of 322 Penshina Bay, since they do not hunt walrus; but along the shores of Bering Sea, wood-carvings are seldom found, owing to the absence of wood in that region. Nor do we find many small wood-carvings of animals among the Eskimo. The Koryak employ for carving all kinds of wood found in their territory, such as larch, poplar, alder, birch, and stone-pine. As a rule, wood, owing to its fibrous quality and the lack of uniform density in its different layers, cannot be considered good material for sculptural work; and the impracticability of its use is further increased by the primitive instruments employed. The most suitable material, on account of its density, is furnished by the birch-tree and by the roots of the stone-pine; but the latter are so hard that they can be worked only with great difficulty by means of the knife.

Stone is not used by the Koryak as a material for sculptural purposes. 324

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[1] See Hoffman, p. 777.

324 This may probably be explained by the fact that the Koryak practised the
art of polishing stone very little. As is well known, but few traces of the
working of stone for artistic purposes have been found in palæolithic stations
of Europe. Among the Eskimo carvings in the National Museum at Washington, we find some specimens of animal figures made from soapstone and flint.[1]

Nor do the Koryak use clay for moulding figures, and we do not know
323 if they ever used it for that purpose. In the excavations of ancient dwellings
532 of the Maritime Koryak, mentioned before, I found traces of their former art
in pottery which disappeared with the introduction of metallic utensils; but
no remains of clay toys have been found.[2]

There is no doubt that among the works of art of North America, the Eskimo carvings of animals resemble those of the Koryak most closely. The Eskimo, the Koryak, the Kerek, and the Chukchee are the only primitive tribes among whom miniature sculpture has been so strongly developed.[3]

517 All the tribes mentioned here use the same technical processes in carving.
Their carvings are realistic in character, are of small or even miniature size,
532 and to a great extent are made as much for the pleasure which the carvers
171 derive from their work as for the satisfaction of the æsthetic tastes of the
people. The difference between the Eskimo and Koryak carvings is, that the latter are less available for practical application than the former, and are of greater artistic worth. In that regard the Chukchee carvings resemble more closely those of the Eskimo, judging from the collection furnished by our Expedition and from the collection of the Ethnographical Museum of the Imperial Academy of Sciences in St. Petersburg.[4] Even the Kerek carvings are inferior to those of the Koryak in their finishing touches. The Chukchee and the Kerek carvings still further resemble those of the Eskimo, in that they are more frequently decorated with engravings, consisting chiefly of dots and lines, than those of the Koryak.

532 The plastic art of the Indians of the North Pacific coast, in so far as it
171 is expressed in carving, is entirely different from that of the Koryak and

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[1] See Murdoch, pp. 398, 399.

[2] Nelson obtained on the Lower Yukon, where the art of pottery was formerly developed, a pair of rudely modelled clay dolls (see Nelson, Fig. 126 on p. 342, and p. 343). In the excavations of the ancient Ainu underground dwellings were found, among the remnants of pottery, clay figures of men. Some figures collected by Professor E. Baelz are now in the Museum für Völkerkunde of Berlin (see p. 645). It is possible that the Koryak made figures of unbaked clay, and that therefore no trace is left of them, as articles made of unbaked clay crumble in the moist ground. The avidity with which the Koryak seize upon every material fit for sculpture may be judged from the fact that their children, as soon as they convinced themselves that the plaster I used could be cut with the knife, started to make toy dishes and animal figures from the pieces which fell on the ground while I was making my masks. Before trying the use of the knife, however, they touched the plaster with their tongues, to see if they could make more palatable use of it.

[3] Among European nations, the Swiss are known for their miniature sculpture from wood and ivory. Really artistic articles may be found quite frequently among the Swiss products; but as a rule, their figures of animals, notwithstanding the careful and detailed finish, produce a less vivid impression than some of the crude figures of the Koryak, in which the most characteristic posture of the animal is brought out.

[4] See Bogoras, Chukchee Material Life, Plates XX, XXI.

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325 **METALLURGY**--smeltirg and refining of ores; alloys; methods of casting; hot and cold forging; tempering; soldering; welding; special apparatus (e. g., bellows, anvil); practical and scientific metallurgical knowledge; etc. See also:

Capital goods industries 39
Tools and weapons 41
Mining 316
Industrialized elaboration of metallurgical processes. 327, 328

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Among the tools used by the Koryak blacksmiths, our attention is claimed first of all by the bellows. The Koryak blacksmiths use single bellows, made of seal-skin, with two planked lids, — one above, and one below. Such bellows we find also among the Chukchee blacksmiths, who are less skilful than the Koryak. The Koryak bellows differ from the bellows represented in Bogoras's work,[1] in that to the upper board a wooden handle is fastened, by means of which the blacksmith's assistant moves it.

Bogoras assumes that the Chukchee bellows were adopted from the Russians. If the information we have concerning the Tungus bellows is exact, then the Koryak, and through them possibly the Chukchee as well, in the pre-Russian or even in the Russian period, could have adopted the single bellows from the Tungus.

The bellows used by the blacksmiths of the majority of East Siberian tribes are double. They consist of two small oblong skin bags lying on the ground, so that the blacksmith's assistant is able to sit between them. Two pipes (of wood or metal) running from the bags unite to form one iron mouth which leads into the furnace. The furnace is usually simply a small hole in the ground, into which charcoal is piled. To make the double bellows stationary, they are fastened to the ground by means of the boards forming the bottom of the bags, and the pipes with their joint mouth are covered with clay. In other localities, soil or some other weight is placed on the pipes to hold them down, while the leather bags lie on the ground. Among the Maritime tribes, the blacksmith's bellows are made of soft seal-skin; among the reindeer-breeders, of dressed reindeer-skin; and among cattle-breeding tribes, of calf or cow hide. In each bag of the double bellows there is a short slit, to the edges of which small sticks are sewed the whole length down. When these sticks are brought together with the hand, the bag is hermetically closed. The blacksmith's assistant, sitting on the floor between the leather bags, alternately raises and opens with his fingers the one bag, and simultaneously closes and lowers the other bag. Work with such bellows is rather hard, as both hands are required and practice is necessary. Usually the work is done by some youth or by a woman. Occasionally I saw such double bellows used among the Tungus in the Yakut district, among the Yakut,[2] and also by Yukaghir blacksmiths, who had evidently adopted it from the Yakut.

Judging by Pallas's drawings, the bellows of Mongolian blacksmiths of

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[1] See Bogoras, The Chukchee, Vol. VII of this series, Fig. 136, p. 215.

[2] I had no occasion to visit the mining regions of the Yakut personally and to see what bellows are used by the Yakut who are engaged in smelting iron-ore. In describing the process of smelting by the Yakut of the Yakut district, Sieroszewski (The Yakut, pp. 381, 382) does not dwell specially on the shape of the bellows used with the Yakut smelting-furnace. But Maak (see The Vilyuisk District of the Yakut Province, Part III, p. 181, St. Petersburg, 1887), in describing the method of iron-smelting employed by the Vilyuisk Yakut, says that they use double bellows in this process. "However," Maak adds, "with many blacksmiths even in my time (1854) such primitive bellows were supplanted by genuine bellows." Unfortunately, Maak does not state what he means by "genuine bellows."

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the eighteenth century were also double.[1] The Gilyak and Ainu blacksmiths, too, use double bellows[2] as described above, a fact in which Schrenck finds proof that both tribes had borrowed the blacksmith's art from one source, — the Japanese. As for the Tungus, to judge by statements made by Georgi,[3] their blacksmiths used simple bellows. Schrenck and Maak give the same information concerning the Gold.[4] Schrenck, by the way, draws from this circumstance the conclusion that the Gold and the Gilyak had acquired the blacksmith's art from different sources, — the former from the Manchu-Chinese, the latter from Japan.

We see that between the Siberian peoples using double bellows, — i. e., between the Mongol-Turks and Ainu-Gilyak, — there live Tungus tribes that employ or formerly employed simple bellows. It seems uncertain whether the invention of the Asiatic double bellows belongs to any single people, the more so, as double bellows are met with not only in India and Malaysia, but even among the primitive blacksmiths of Africa. The group exhibited in the Paris Ethnographic Museum in the Trocadéro, and representing a negro blacksmith with his assistant sitting between two leather bellows, vividly recalled to me the Yakut blacksmith.[5] Still it must be said that the small double bellows of the Siberian blacksmith, consisting only of two bags, must have been invented by a nomadic tribe. Two small skin bags, with a small anvil and a pair of hammers and tongs, are easy to adjust anywhere, and not difficult to carry from place to place. The Yakut blacksmith has remained until our time to a considerable degree an itinerant artisan. Usually the customer does not come to him, but he goes with his smithy to the wealthy Yakut to fill his orders. The principle of the double bellows, designed to force an uninterrupted current of air into the furnace, is doubtless superior to that of the single bellows. On this principle are built the modern factory bellows, which are operated by automatic communicators. It must be supposed that among the more primitive blacksmiths, too, the double bellows, if not borrowed from another tribe along with blacksmithing, are not of the oldest type.

The inconvenience of the double bellows above described consists in the necessity of having assistance in all work, as it is inconvenient for the smith now to occupy a position between the leather bags and then to jump out to

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[1] See P. S. Pallas, Sammlungen historischer Nachrichten über die Mongolischen Völkerschaften, I, Plate V.

[2] See Schrenck, II, p. 255.

[3] Georgi, Part III, p. 45.

[4] See Schrenck, II, p. 254; and Maak, Journey to the Amur, St. Petersburg, 1859, pp. 175 and 207. I did not happen to see modern bellows of the Tungus nearest to the Koryak; but the Tungus of the Yakut Province, i. e., neighbors of the Yakut, at present use, as I stated above, the double bellows, evidently adopted from the Yakut.

[5] The ancient Egyptians already employed double bellows. Judging by ancient drawings, they consisted of two vessels covered with skin. A slave stepped in turn with his feet, now on one and then on the other leather lid of the vessel, and at the same time opened the aperture in the other vessel. Andree (Die Metalle bei den Naturvölkern, p. 4) supposes that from the Egyptians the double bellows spread all over Africa.

the furnace and anvil, especially if the sluggishness of movement of the 325
primitive blacksmith and the lack of concentration upon his labor are taken
into consideration. Our common village blacksmith, in making small articles 171
such as the primitive blacksmiths produce, manages without an assistant. Standing near the furnace, he pulls the rope of the bellows, and, when the iron has become red-hot, he takes it from the furnace and turns around to the anvil.

To turn again to the Koryak blacksmith. The single bellows are used 325
lying on the ground; and the furnace, too, like that of the Yakut blacksmith, is built in the ground. He needs an assistant, who, sitting down flat, raises and lowers the bellows by means of a handle.[1] A Koryak smithy is less mobile than a Yakut one. The chief blacksmiths (one, Čᴇqu'l by name, in the village of Kuel; and the other, Kıya'učñın by name, in the Paren settlement) have built special smithies separate from the living-apartments. They are small log-cabins of about the height of a man. A large window cut in the wall, and left completely open, serves as an entrance. In the ceiling, the logs of which are covered with earth, a square hole is cut out in the middle, which lies above the furnace. A small anvil is placed on a low block quite near the furnace, and the blacksmith sits[2] by the anvil on a low stool. The Koryak blacksmith's tools are not numerous. They consist of two or three hammers and forge-tongs of two or three sizes. The tools nowadays are bought of Russian merchants; but along with the Russian, Chinese hammers, brought from Vladivostok, are also met with. The geological hammers brought by me from America met with complete approval on the part of Koryak blacksmiths. The bellows of the chief Koryak blacksmith are of rather large size. They give an intermittent but strong current of air, nevertheless thick pig-iron is but poorly heated in the furnace. Koryak blacksmiths prefer to work in bar or thin block iron. Besides, they are unfamiliar with the art of working with two hammers. They know quite well how to weld iron; but only the best artisans, such as the blacksmiths mentioned above, succeed in obliterating all traces of welding. They are not acquainted with the art of tempering; and iron arms or knives made by them are distinguished by their flexibility, but the blades of good spears and knives have a thin steel plate welded to the iron. Thin steel blocks bought for this purpose are purchased by the blacksmiths from merchants or from the Government depot. The steel loses a considerable degree of its hardness in the furnace, but the finished blade of the knife or axe is still hard enough. The stock of coal for the furnace is usually made by the

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[1] From Maak's description of a Gold blacksmith, it appears, however (Journey to the Amur, p. 207 and Plate II), that he did manage to get along with his single bellows without an assistant.

[2] The Yakut and Tungus blacksmiths, too, work sitting. The same is stated by Andree (Die Metalle bei den Naturvölkern, p. 80) concerning gipsy blacksmiths. This is probably explained by the fact that the furnace of these blacksmiths is on the ground, and the anvil must therefore be not much above the ground.

325 Koryak blacksmiths in summer. They make fires of driftwood, and pour water over the coals after the wood has burned over. Then they carry the coals over to the smithy in skin bags. The Koryak blacksmith has a special suit for his work. In summer he works bare to the waist, dressed only in old skin trousers, and in winter he puts on a worn fur coat. Of course, in severe cold no work at all is done in the smithy above described.

555 The blacksmiths of Kuel and Paren work both on merchants' orders and for the barter carried on by the artisans themselves. The Russian merchants
326 supply the artisans with iron, and pay for the work with tea, tobacco, and
437 other wares. Besides, the blacksmiths themselves acquire iron, hammer out knives and spears, and travel with these to the local fairs or the camps of nomad reindeer-breeders, and exchange the iron goods for reindeer-skins, meat, and furs. The last-named are afterward exchanged to merchants. Skilful blacksmiths, like those above mentioned, are paid special respect. As among all primitive peoples, the blacksmith's art is not viewed by the Koryak as a trade which every one can learn, but as a divine gift.[1] In Kuel and Paren, however, a considerable part of the Koryak can hammer iron; and in addition to the recognized talent, there are second-rate blacksmiths, who work periodically, before fairs, in order to acquire clothing and food in exchange for the products of their art. In general, the villages of Paren and Kuel may be considered as the centres of Koryak blacksmithing; while Kamenskoye is a commercial settlement in which are concentrated the Koryak intermediaries of exchange between the Russians and the "Reindeer men" (Koryak and Chukchee). In accordance with this, the Parenians and Kuelians, as representatives of labor, are poorer than the inhabitants of Kamenskoye, the representatives of commerce.

326 The articles hammered out are finished by the blacksmiths with files.
412 The art of polishing iron is unknown to them. The work of Koryak blacksmiths is limited to side-arms, tools, and several other household objects.

Fig. 139 represents an axe (*a*) and an adze (*b*) made in Paren. The axe (ai'ḷăn) is in the shape of a common Russian axe, and is used for chopping trees and wood. The adze (*b*) is mounted on a handle, axe-fashion, but its blade is set crosswise and is curved. This tool is called "axe with ears" (weḷō-aiḷăn). It is used in hollowing out troughs and dug-out canoes, like a crooked adze (see Fig. 140, *b*).

Fig. 140, *a*, *b*, represents two adzes made in Paren. That marked *a* is a straight adze (ga'ttɯ). In shape it is an imitation of the ancient Koryak adze made of ivory or horn. Its handle is also curved, like that of a bone adze. The handle of the specimen here figured is made of bone of whale, but wooden handles also occur. The blade is mounted on the handle without same may be said of the metal bracelets. I have already described iron bracelets. Two made of brass are represented in Fig. 149, *a* and *b*. 326 301

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[1] Among the Yakut the blacksmiths stand on a level with the shamans. The Yukaghir blacksmiths have special protecting spirits. The position of the blacksmiths among the Tungus is similar.

The jew's-harp shown in Fig. 149, *c*, is made of brass. Usually this instrument is made of bone. The needle-case (Fig. 149, *d*) is made of two gun-cartridges, and has brass and iron pendants. [534]

The copper of worn-out teapots is used by the Koryak for patching and riveting damaged copper vessels. Spears and large knives are inlaid with copper and partly with brass. First the designs, representing chevron ornaments and various kinds of curves, are incised with a steel chisel. Then copper shavings are driven in with a hammer, and the weapons are smoothed off with a file.[1] 326 531

325 ● 171

Silver-work, smelting, or cold-hammering are unknown to the Koryak; though the blacksmiths of the Tungus and Yakut, the tribes nearest to them, work also in silver. The Tungus work is done cold only, while the Yakut have attained a high degree of proficiency as silversmiths. With a hammer they beat out various ornaments and other objects from pieces of silver; smelt silver in crucibles of their own manufacture, made of fire-proof clay, and then pour the smelted metal into moulds; make alloys of silver with other metals; engrave the most complicated designs on silver ornaments; and enamel silver after the style of the Circassians. The material for this work is supplied mainly by old silver objects and silver coins.[2]

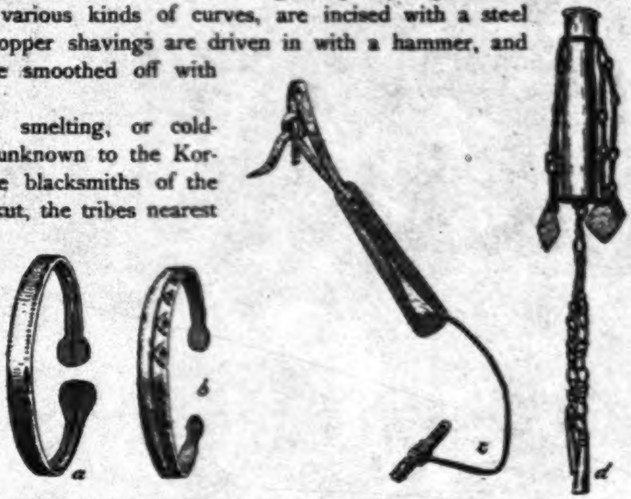

Fig. 149, *a* ([illegible]), *b* ([illegible]), Brass Bracelets; *c* ([illegible]), Jew's-Harp made of Brass; *d* ([illegible]), Needle-Case made of a Cartridge.

Tungus smiths hammer silver coins into small ornaments, such as ear-rings, rings, buttons, buckles, or little thin disks for breast-ornaments, and polish these with a file and soft leather made of reindeer-skin. The Tungus buy larger and more ornamental silver objects, such as belts, pendants for coats, and ornaments for hair-dressing, from the Yakut.

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[1] For ornamentation on knives and arms, see Figs. 142, 143, 189, 193, 195.

[2] In the Yakut Province, stories are in circulation that certain Yakut silversmiths reduce silver from ore, but carefully conceal the location of the mines. I could not verify the truth of these tales.

325 The love for silver ornaments is equally strong among the Tungus and
301 the Yakut; among the latter, however, this passion has weakened of late, under the influence of civilization. They even preferred silver to gold, though the Yakut well know that gold is the more expensive metal, and though Yakut silversmiths know how to smelt gold, too. Even the poorest Tungus women have some silver ornaments on their dresses.

The Koryak, on the contrary, have no particular partiality for silver. Even the women of wealthy reindeer-breeders do not always possess silver
[517] ornaments. The color of copper or brass is more suited to their taste than the white color of silver. I remember that in Kamenskoye, when I offered a Koryak woman the choice between a wide brass ring with a shining shield and a narrow silver ring, she chose the former. A contrary result was obtained from the same experiment at another time with a Tungus woman.

The Koryak call silver ñaña-poļou′ntın ("easily selling iron"). This name, therefore, expresses the superiority of silver over iron. The derivation of the word for "iron" is unknown. At any rate, it was not borrowed from the Russians.

322 Work in Wood and Bone. — Wood and bone objects, from tiny carvings up to sledges, are nowadays wrought only by means of the above-
177 described iron tools. For fastening the parts of sledges and of the frames of skin boats, pegs of wood or iron are not used. Everything is tied with leather straps; but the Koryak are fond of joining their small chests for holding tea-dishes, or other objects, with steel nails obtained from the Russians. Household objects of wood have been described before,[1] and carvings will be discussed later. The netting-needle, and the vice used instead of iron pincers for finishing iron objects with a file, are made of wood.

321 In addition to the knife for cutting herring,[2] many other tools are made of bone, antler, or ivory. A thimble and ring of ivory, which protect the thumb and index-finger in chipping stone tools and working wood with the
285] knife, have been described.[3] Fig. 150, *a*, shows a bone needle used in weaving baskets of grass. Fig. 150, *b*, represents a bone tool found by me
172 in excavating an old underground dwelling at the mouth of the Nayakhan River.
412 In shape it looks like an imitation of an iron hammer, but with this difference, that holes have been made in it for tying it to the handle by means of small leather straps. What its practical application may have been, is unknown. It is too small to have served for clubbing seals.[4] It was found with potsherds; and if its shape has been copied from an iron hammer, then
321 the potsherds must be of very recent origin. Fig. 150, *c*, represents a pair of ear-rings carved out of walrus-tusk with a knife. In shape these ear-rings are an imitation of the stone ear-rings referred to before (see p. 610), but differ from them in having linear ornaments.[5]

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[1] See p. 570. [2] See p. 573. [3] See p. 608. [4] See p. 545.

[5] See also bone lamp (p. 567), steel made of antler (p. 568), spoons (p. 571), fish-rake (p. 573), picks and pestle (pp. 577—579).

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326 SMITHS AND THEIR CRAFTS--nonindustrialized specialization in metallurgical crafts; types of specialists (e.g., blacksmiths, coppersmiths, tinsmiths, silversmiths, goldsmiths, gunsmiths); special skills and services of each; products not elsewhere described; organization (e.g., guilds); social status of smiths; etc. See also:

Tools, weapons, utensils, and appliances . . .	41
Jewelers	306
Industrial specialization in metallurgical processes	327, 328

592 231 511 Families that have poor or young workers, and who cannot lay by sufficient stores of dog's food for the winter, usually own few dogs. The members of such families are deprived of the chance of making trips to the Russian hamlets to buy imported wares, or to the nomad camps of the Reindeer Koryak to trade for reindeer-meat.

NUMBER OF HOUSEHOLDS.	NUMBER OF DOGS IN EACH HOUSEHOLD.	TOTAL NUMBER OF DOGS.
1	2	2
4	3	12
4	4	16
4	5	20
4	6	24
7	7	49
13	8	104
5	9	45
13	10	130
3	11	33
5	12	60
2	13	26
1	15	15
1	16	16
3	17	51
1	18	18
8	20	160
TOTAL 79		781

471 494 Nearly all the men who own as many as twenty dogs, — enough for two teams at the rate of ten dogs per sledge — either conduct an independent trade or are employed as clerks by the Russian merchants. Almost all through the winter the senior member of such a family is journeying from one reindeer-camp to another; while at home only a few dogs remain for work around the house, for trips to get wood, for hauling supplies of food ● [326] from the summer camp, and for other exigencies. The smiths of Paren and Kuel, too, own not less than ten dogs each, which enable them to carry their [437] iron-work among the Reindeer Koryak for barter. I found the best dogs among the Itkana people.[1] Their settlements lie off the main trail, running

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[1] Around Bering Sea the best dogs are to be found on the Poqač (see Bogoras, The Chukchee, Vol. VII of this series, p. [illegible]).

Fig. 101 shows a stool of the Reindeer Koryak. It is made of reindeer-
352 antlers still attached to the frontal bone. The beams and two tines of the
antlers serve as legs, and two boards are tied to them to make the seat.
This chair seems to be an imitation of a Russian bench. Nowadays, however,
it is often found with the Reindeer Koryak. The Maritime Koryak also use,
instead of chairs, the boxes in which they keep the tea-dishes. On Plate xx
a girl is shown sitting by the fireside on such a box, and the other one is
264 sitting in a crouching position. The use of tables is unknown to the Koryak.
352 With the exception of the Russianized natives, they place a board or a trough-shaped dish on the skins on which they sit, and put the carved meat or fish, with seal-oil, on it. The people sit around and eat, taking up the pieces with their hands. Often the box in which the tea-dishes are kept serves as a table. Others have a table-board made of two or three planks, which is put on the box when they are eating, or drinking tea. However, in some houses of the Maritime Koryak, very small low tables, 30 cm. or 40 cm. high, may be found, at which the guests eat; but the Russianized Koryak of North Kamchatka and of the villages of the Okhotsk Sea south of the Gishiga River, who live in log-cabins, also use benches, chairs, tables, and beds, like their Russian neighbors.

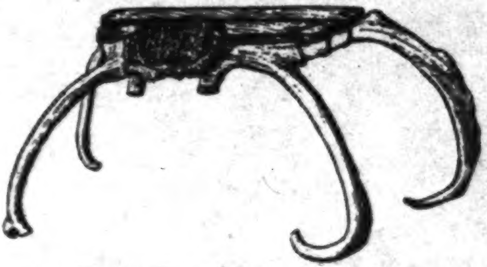

Fig. 101 ([illegible]). Stool made of a Pair of Antlers.
Height, 41 cm.

With the introduction of metal cooking-vessels, these entirely superseded
252 clay pots, and the method of cooking food by means of red-hot stones went
415 out of use. Nowadays cooking is done only in iron and copper kettles
imported by merchants. The Koryak prize copper kettles particularly, as they
177 are durable; but they are not easily obtained, owing to their high price,
and only the wealthy reindeer-breeders or Koryak engaged in trade or barter
can afford to buy them. Such kettles last a very long time. Of course, the
tin lining wears off very soon, but the Koryak continue to cook in them.
● 326] The Koryak smiths of the villages Paren and Kuel have learned to make
kettles from imported sheet-iron. In imitation of our metal waterpails, they
give them the shape of a truncated cone, with a wire handle by which to
suspend them over the fire. These kettles do not last long. The thin sheet-iron soon burns through, or is eaten through by rust in the damp summer.

At present the teapot is another metal appurtanance of the household. The dealers import chiefly copper pots, but some are found of enamelled white iron.

the head-piece of the fire-drill a small rounded quartz pebble is chosen; and on one side of this a socket for the upper end of the shaft of the drill is made by means of a drill (at present an iron drill).[1] 324 354

I have spoken before of the large flat stones which are used, without any artificial finish, for tables,[2] — one measuring 77 cm. in length and 48 cm. in width; another ($\frac{70}{5180}$), 38 cm. in length and 28 cm. in width. It is interesting to compare these stone tables with the unworked sandstones found by Dr. H. Grimm in the excavations of ancient underground dwellings, evidently of the Ainu, on the island of Yezo.[3] Grimm does not suggest the use to which these stones may have been put by the former inhabitants of the underground dwellings. [352]

The similarity of these dwellings, and the remains found in them, to the underground Koryak dwellings and the ancient utensils of the tribe found in excavations and preserved among them as keepsakes, suggests that the Maritime Koryak participate in a type of material culture formerly widespread over a considerable portion of the coasts and islands of the northern part of the Pacific Ocean. The flat sandstones described by Grimm seem to me to have done the same service among the former inhabitants of the underground houses on Yezo as the analogous stones still do among many Koryak, chiefly the Maritime Koryak of Penshina Bay. 174

WORK IN IRON. — At present Paren and Kuel, villages of the Maritime Koryak of Penshina Bay, are renowned for their manufacture of iron tools. The knives, axes, and spears of the Paren and Kuel blacksmiths, not only find a market among the Koryak and Chukchee, but even find their way to Kamchatka and to the neighboring Tungus. 412 177 326

Here two questions arise, — when did the Koryak become acquainted with iron implements, and from whom did they learn the art of the blacksmith?

In Kamchatka, Krasheninnikoff[4] heard stories to the effect that the Kamchadal were familiar with iron implements before they ever met the Russians. According to these stories, the Kamchadal used to get Japanese iron objects by barter from the Kurilians. Of course, this is possible; but there cannot have been any great amount of barter and no regular exchange between these tribes at that period. In this manner iron tools could have come into the hands of the Kamchadal in but very limited quantities, and would have become the property of a few fortunate families only. It seems important to note that while the tribes of northeastern Asia were still in the stone age, not only were nations as highly civilized as the Japanese and Chinese acquainted with iron, but even certain tribes of the Amur region,

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[1] See Part I, Plate VI.

[2] See pp. 569, 608.

[3] See H. Grimm, Beitrag zur Kenntniss der Koropokguru auf Yeso und Bemerkungen über die Shikotan Aino (Mitteilungen der Deutschen Gesellschaft für Natur- und Völkerkunde Ostasiens in Tokio, Band V, pp. 369–373).

[4] See Krasheninnikoff, II, p. 49.

326 and the Yakut, had been working it for a long time. Thus we may readily
177 conceive that long before the Koryak and other northern natives met with
the Russians, iron tools had come into the hands of those tribes through a
412 long series of exchanges. Thus, for instance, on the Kolyma tundra I heard members of a northern Yukaghir clan tell, that, previous to the arrival of the Russians, they had had an iron axe, the property of the whole clan, which was in the keeping of "the Old Man," and was carried over the whole tundra whenever there happened to be need anywhere of knocking down or cutting in two a thick stout tree, which it was very hard to do with stone axes. An acquaintance of this kind, or even of a somewhat higher degree, may have existed also among the Koryak. They may have obtained iron objects, on the one hand from a Japanese source,[1] through the Kurilians and Kamchadal;[2] on the other hand, from a Manchurian-Chinese source, through the Tungus. According to historical data, based on reports of the Cossacks who had reached the mouth of the Okhota River in 1652, the Tungus living there were armed with iron and bone weapons, and clad in iron armor.[3] There is still a third source from which, during the pre-Russian period, iron objects may have been derived. I refer to the Yakut who represent the Mongol-Turkish people, who not only knew the metal and the art of forging it, but also the art of smelting iron from iron ores.[4]

Iron armor,[5] which supplanted the older leather or bone armor, or was still in use alongside of them, has, in my opinion, been known to the Koryak prior to their meeting with the Russians.

326 Let us now turn to the question of the beginning of blacksmithing among
174 the Koryak. From which tribe did the Koryak learn to forge iron? To
answer this question, too, is not easy. But since only in barter can there be intermediaries between producer and consumer, while in learning a trade

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[1] The Japanese armor found by Bogoras among the Chukchee in the northern tundra must evidently have reached there through pre-Russian commercial exchange (see Bogoras, The Chukchee, Vol. VII of this series, pp. 54, 164, and Fig. 85).

[2] The Cossacks who were sent from Anadyr in 1696 to conquer Kamchatka found Japanese documents in the Koryak dwellings of North Kamchatka. A little later they discovered, near Tighil, a Japanese vessel that had been wrecked (see Slovtsoff, Historical Survey of Siberia, p. 136). This points to the possibility of occasional but direct intercourse in the past between the Koryak and Japanese.

[3] See Supplement to the Judicial Acts, III, pp. 333, 334.

[4] For data concerning the rôle of the Turkish tribes (to which the Yakut belong) in spreading the knowledge of iron-work in Siberia, see R. Andree, Die Metalle bei den Naturvölkern mit Berücksichtigungen prähistorischer Verhältnisse (Leipzig, 1884), pp. 126, 127. Popoff (Zeitschrift für Ethnologie, 1878, p. 461), in referring to the statement (mentioned by me in the text) concerning the iron weapons and armor of the Okhotsk Tungus at their first meeting with the Russians, expresses the opinion that the Okhotsk Tungus had become acquainted with iron objects through the Yakut; but considering the fact that the Yakut are comparatively recent arrivals in the extreme northeast of Siberia, and that the northern Tungus are supposed to have come north prior to the Yakut, from the district of the Amur River, it may be fully admitted that their acquaintance with iron, in one way or another, is more ancient, and derived ultimately from a Manchurian-Chinese source. Even in the most ancient European statements concerning the ancient Manchurians, who are kindred to the Tungus, mention is made of their helmets and cuirasses made of scale-like iron plates fastened to one another with nails, or arranged on a skin foundation (on this question see Schrenck, II, p. 259, and his references to Neuhof and Witsen).

[5] See Fig. 98, p. 562; and Plate XXIX, Fig. 1.

direct intercourse with the master artisan is required, the Koryak could have learned the blacksmith's trade only from the Russians or Tungus. Though we possess no direct information proving that the Koryak knew how to forge iron prior to their meeting with the Russians, certain devices, as we shall see later on, do not preclude the possibility of this art having been adopted by the Koryak from the Tungus previous to the advent of the Russians to the region.

Along with the statements that ready-made iron tools from the sources mentioned reached the Kamchadal, Koryak, Chukchee, and Yukaghir even previous to the Russian period, we also have some information which proves that the beginning of the art of iron-forging among these peoples must be assigned to a later period. From certain sources we learn that the fragments of metal and pieces of ore which reached the northern tribes by chance, while they were still in the stone age, were objects of special reverence, even of religious cult. Even at that time they knew that from these hard substances other peoples made knives, axes, and spears.

Wrangel's companion, Matyushkin,[1] states that according to a story related by a Yukaghir, the Omoki, the forefathers of the Yukaghir, were familiar with the use of iron before the advent of the Russians. In another place[2] he tells of ancient Yukaghir graves erected on posts which seemed to him to have been made with stone axes. In these, pieces of iron, brass, and copper, like the ornaments on shamans' dresses, were found.

According to Steller,[3] the Kamchadal paid homage to pieces of iron obtained from the Kurilian Ainu. The iron was set up on a pole in front of the dwelling, as a proof of the wealth and special importance of its owner. We also possess some information that the Kamchadal, as well as the Koryak and Chukchee, knew the art of hammering fragments of metal. "They do not temper iron," says Krasheninnikoff, "but, placing it cold on the stone, they forge it with a stone instead of a hammer." Thus they used to make spears and arrows from iron fragments, burned-out kettles, or even new iron kettles bought of the Russians for this special purpose. If the eye of a needle broke, they used to flatten the broken end and drill a new eye with another needle.[4]

From whomsoever the Koryak may have learned to forge iron, — from the Tungus or Russians, — the development of blacksmithing into a steady industry among them was hampered by lack of material and of tools. Peoples that work iron, but who cannot smelt ore, or in whose territory there

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[1] See Wrangel, Reise II, p. 6.

[2] Ibid., II, p. 137.

[3] Steller, p. 320. See also Krasheninnikoff's statement (II, p. 47) that every Kamchadal possessing a fragment of iron was deemed rich and lucky.

[4] See Krasheninnikoff, I, p. 48. All these devices of working iron are known even now among the Chukchee, and also among the Koryak in out-of-the-way places.

326 174 are no beds of ore, depend, in the development of blacksmithing, upon the tribes that know how to smelt iron from ore.[1] Excepting the Yakut, who came to the north in comparatively recent times, the civilized nations nearest to the Koryak that have developed the art of metallurgy — the Japanese and Chinese — were separated from them by tribes which, even if they did adopt from the former the art of blacksmithing, did not learn the art of mining. Thus, leaving out the Kamchadal, — from a technical point of view, evidently a tribe less gifted than the Koryak, — the Koryak were separated from the Japanese by the Ainu and Gilyak, who, as Schrenck has proved,[2] had acquired the blacksmith's art from the Japanese. From the Chinese and from the Yakut the Koryak were separated by Tungus tribes.

According to historical data, the first Russian conquerors of Siberia not infrequently had blacksmiths in their parties; but when compelled to work ores, they often had recourse to natives expert in this line of work, such as the Tartar and Yakut.[3] In the seventeenth century the higher authorities of Siberia more than once addressed to the Moscow Government requests to send "experts on ores" to Siberia.

During the early times of the conquest of Siberia, the Russian Government forbade the selling of arms, powder, and lead to those natives who were as yet unpacified. Krasheninnikoff says of the Kamchadal[4] that it was forbidden to sell them iron tools and copper dishes, lest they might make side-arms for use against the Russians. Such conditions could not advance the development of the art of metal-working among those natives of Siberia who previous to that period had not been familiar with it.

Of course, the blacksmith's art could develop among the Koryak only after the Russians began to sell tools freely and to import iron as material for manufacturing tools. At present the Russian Government, among other things, keeps bar and block iron and tools in the depot established in the village of Kushka (the residence of the chief of the district), at the mouth of the Gishiga River, to be sold to the natives of the Gishiga district at a price equal to the cost price in Vladivostok plus transport expenses by steamer to Gishiga.

It is difficult to say exactly when blacksmithing developed as a regular home industry among the Koryak. We find the first printed data concerning the Koryak as blacksmiths in Dittmar's[5] descriptions. These refer to the middle of the nineteenth century.

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[1] On the location of iron-beds in the Kamchadal and Koryak territories, see Krasheninnikoff, I, p. 304; Pallas, Neue nordische Beiträge, 1793, V, p. 271; Dittmar, pp. 281, 363.

[2] See Schrenck, II, p. 255.

[3] See, for example, Slovtsoff, Historical Survey of Siberia, pp. 43, 88.

[4] See Krasheninnikoff, II, p. 48.

[5] See Dittmar, Die Koräken, p. 11.

325 Koryak blacksmiths in summer. They make fires of driftwood, and pour water over the coals after the wood has burned over. Then they carry the coals over to the smithy in skin bags. The Koryak blacksmith has a special suit for his work. In summer he works bare to the waist, dressed only in old skin trousers, and in winter he puts on a worn fur coat. Of course, in severe cold no work at all is done in the smithy above described.

555 ●326 437 The blacksmiths of Kuel and Paren work both on merchants' orders and for the barter carried on by the artisans themselves. The Russian merchants supply the artisans with iron, and pay for the work with tea, tobacco, and other wares. Besides, the blacksmiths themselves acquire iron, hammer out knives and spears, and travel with these to the local fairs or the camps of nomad reindeer-breeders, and exchange the iron goods for reindeer-skins, meat, and furs. The last-named are afterward exchanged to merchants. Skilful blacksmiths, like those above mentioned, are paid special respect. As among all primitive peoples, the blacksmith's art is not viewed by the Koryak as a trade which every one can learn, but as a divine gift.[1] In Kuel and Paren, however, a considerable part of the Koryak can hammer iron; and in addition to the recognized talent, there are second-rate blacksmiths, who work periodically, before fairs, in order to acquire clothing and food in exchange for the products of their art. In general, the villages of Paren and Kuel may be considered as the centres of Koryak blacksmithing; while Kamenskoye is a commercial settlement in which are concentrated the Koryak intermediaries of exchange between the Russians and the "Reindeer men" (Koryak and Chukchee). In accordance with this, the Parenians and Kuelians, as representatives of labor, are poorer than the inhabitants of Kamenskoye, the representatives of commerce.

326 412 The articles hammered out are finished by the blacksmiths with files. The art of polishing iron is unknown to them. The work of Koryak blacksmiths is limited to side-arms, tools, and several other household objects.

Fig. 139 represents an axe (*a*) and an adze (*b*) made in Paren. The axe (ai´ḷan) is in the shape of a common Russian axe, and is used for chopping trees and wood. The adze (*b*) is mounted on a handle, axe-fashion, but its blade is set crosswise and is curved. This tool is called "axe with ears" (weḷō-aiḷăn). It is used in hollowing out troughs and dug-out canoes, like a crooked adze (see Fig. 140, *b*).

Fig. 140, *a*, *b*, represents two adzes made in Paren. That marked *a* is a straight adze (ga´ttı). In shape it is an imitation of the ancient Koryak adze made of ivory or horn. Its handle is also curved, like that of a bone adze. The handle of the specimen here figured is made of bone of whale, but wooden handles also occur. The blade is mounted on the handle without a lashing, and in this regard the iron adze differs from the ancient one made of bone. This adze serves for the rough hewing of the outer side of wood. 326 ●

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[1] Among the Yakut the blacksmiths stand on a level with the shamans. The Yukaghir blacksmiths have special protecting spirits. The position of the blacksmiths among the Tungus is similar.

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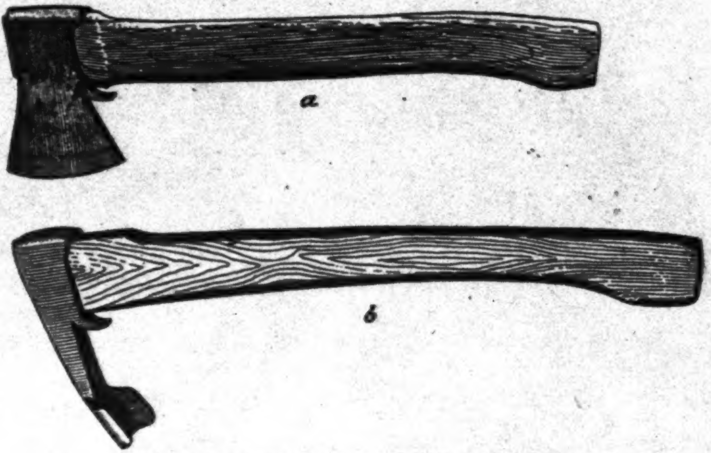

Fig. 139, *a* ([illegible]). Axe (length, 53 cm.); *b* ([illegible]). Adze (length, 45 cm.).

With it are hewn the runners and stanchions of sledges, snow-shoes, the frames of skin boats, etc., which are finished afterwards with knives.

Fig. 140, *b*, shows a curved adze (we|ŏ'ga'tti, "adze with ears"), with

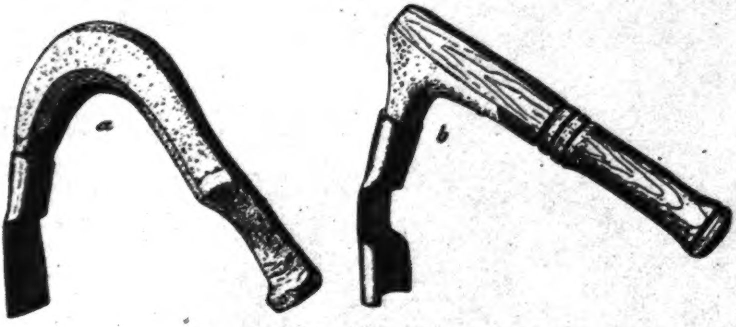

Fig. 140, *a* ([illegible]), *b* ([illegible]). Adzes. ½ nat. size.

which wooden buckets, troughs, dishes, and other wooden vessels,[1] are hollowed out. The handle of this adze consists of two parts, — one of wood, and one of bone, — which are spliced together.

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[1] See pp. 570, 571.

326 412 Fig. 141 shows a man's ordinary belt-knife, with a wooden sheath having tin rims and ears for suspending it on the belt. This knife, like all straight knives, has a thick back. It is called "belt-knife" (itı̆'t-wal or yeče'twal), and is used in eating, and for working small wooden objects and carvings in bone. [281] With this same knife, sharpened to a keen edge, hair is cut or shaved,[1] the hair on reindeer-skins designed for clothing is cut and reindeer are stabbed when killed for food and not intended as offerings. [251] With this knife, too, fish is gutted for sun-drying. Women usually carry it stuck into the boot-leg. In very rare cases do women carry such knives at the belt.

A knife of the same form, but somewhat longer (including the haft, about 45 cm. in length), is called "hip-knife" (yō-wal), because it is not carried on the belt, but is tied to the

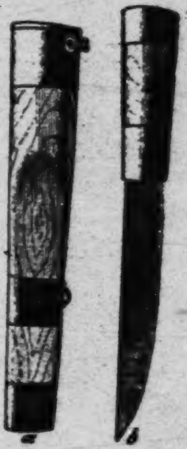

Fig. 141 ([illegible]). Straight Knife and Sheath. ½ nat. size.

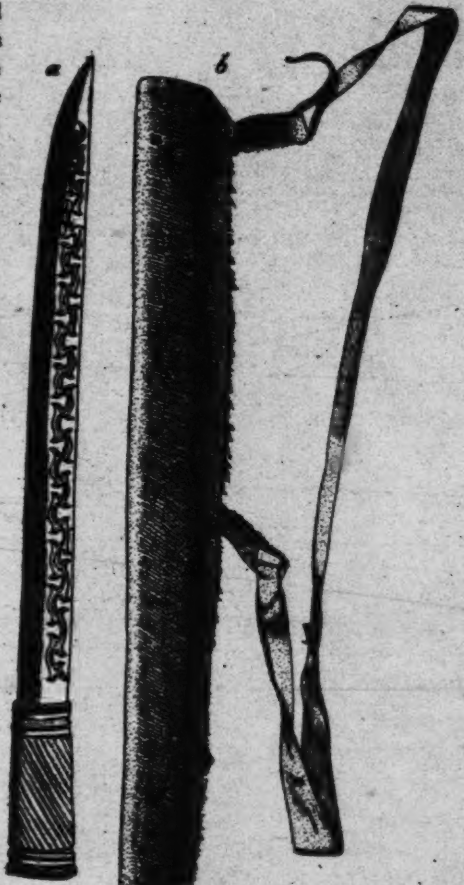

Fig. 142 ([illegible]). Large Knife and Sheath. Length of knife, 56 cm.

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[1] See p. 604.

right hip, under the coat, so as to be drawn easily with the right hand. With this knife animals are skinned and grass is cut, and with its back the foot-bones of animals are broken to extract the leg-marrow. 326 412

Fig. 142 represents a large knife with case, called "large knife" (ma'iñı-wal), "breast-collar or strap knife" (wa'gil-wal), or "knife carried on one's self" (a'mta-wal). It is carried like a sabre, across the shoulder, in a leather sheath (*b*) attached to a breast-collar. This knife was used even recently as a battle-weapon, like a short sabre, having supplanted the bone battle-knives made of the ribs of elks and wild reindeer. The sheath is of thong-seal skin sewed very roughly with sinew-thread. The short haft of the "large knife" is made [411]

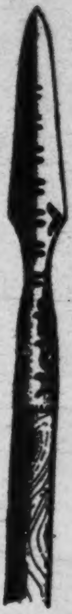

Fig. 143 ([illegible]). Point of Spear. Length of point, 30 cm.; total length, 175 cm.

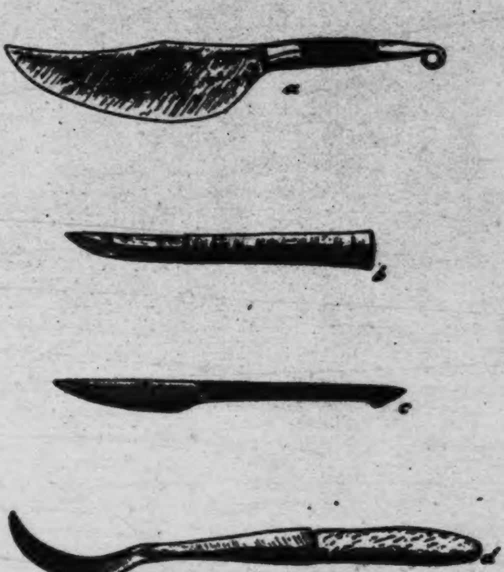

Fig. 144. Iron Knives. *a* ([illegible]), Woman's Knife (length, 28 cm.); *b* ([illegible]), ;Carving-Knife (length, 20 cm.); *c* ([illegible]), Straight Knife (length, 16 cm.); *d* ([illegible]), Crooked Knife (length, 23 cm.).

of bone of whale. The style of ornamentation on this kind of iron-work will be discussed later on.[1] The major of "large knives" are made without ornament. They are made chiefly for the Reindeer Koryak. At present wood is split, and frozen meat and bones are chopped, with this kind of knife.

Fig. 143 represents a spear made by a Kuel smith. It is double-edged,

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[1] See Chapter XI.

326 412 long, narrow, ornamented, and well finished. The spears for every-day use are not ornamented. They are of simple and rough workmanship. Some spears are made with a ridge in the middle, which is also often met with on spears from the Amur region (see, Fig. 195).

Knives for special kinds of work are represented in Fig. 144. The woman's knife, *a* (ñau-wal) is of a sickle-shape, its form being an imitation of the ancient flat knife made of slate.[1]

281 412 177 The woman's knife has no sheath. It is kept in the work-bag, together with shavings of skin. With this knife, women cut skins and furs for clothing.[2] The cutting is done on a cutting-board. Koryak women rarely use scissors. Imported broadcloth for the upper coat, and calico for shirts, are also cut with the knife. Koryak blacksmiths do not manufacture scissors. The large shears shown by Bogoras[3] are the work of Yakut or Amur River blacksmiths. Yakut women cut skin for clothing with such scissors. Nevertheless Koryak women exhibited great joy when we presented them with ordinary narrow iron scissors in return for services rendered, or for submitting to being measured, and immediately pressed them into service.

321 531 322 Fig. 144, *b*, represents a knife with a long handle, specially used for carving in bone or wood. However, this knife is also called a belt-knife, and is worn at the belt in a sheath. Its wooden handle is covered with sheet-brass which is adorned with scratches made with the point of a knife, and evidently representing a technical ornament. Fig. 144, *c*, represents a straight knife (tami'ñu-wal, "working-knife"), and *d* a curved knife (keñi-wal, "curved knife"), used in carving bone and wood, and in hollowing out spoons, ladles, dippers, plates, and dishes.

326 412 Fig. 145 represents an iron chisel and an iron bow-drill for work in wood. The chisel (*a*) has a curved edge for making holes. The handle of the drill (*b*) and the bow are made of bone of whale. A similar bow-drill, only with a smaller point made of steel, is used also in riveting old kettles, and generally for boring in iron.

401 [372] 321 I did not happen to see a pump-drill in use. It is curious that the bow-drill is called in the Koryak language mi'lgitine ("fire-procuring"). This points to the fact that the use of the bow-drill for procuring fire had preceded

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[1] Murdoch (The *Point Barrow Eskimo*, Fig. 106, p. 153) mentions an ancient large single-edged slate knife of this shape, belonging to the Eskimo, and supposes that it was used specially for cutting food. I am inclined to think that it was a woman's knife for cutting skin. Its shape is quite similar to the woman's iron knife of the Koryak, whose blacksmiths doubtless originally imitated ancient stone models. In Mason's article on the woman's knife of the Eskimo (Report of the U. S. National Museum, 1890, p. 411) are collected types of women's knives of the Eskimo and certain Indian tribes from various localities. These illustrations show that nearly all — both the stone knives, and those of iron made in imitation of the stone ones — have a crescent-shaped blade, just as in the case of the woman's iron knife of the Koryak. Nearly all knives of which illustrations are given by Mason have handles like those of chopping-knives. Only in three of them (see Plates LIX, LXIV, and LXVIII, Figs. 1, 4, 2) do we see a handle on the side, just as on our woman's knife.

[2] Ornamented woman's knives are represented in Fig. 193.

[3] See Bogoras, The Chukchee, Vol. VII of this series, Fig. 151, *c*, p. 222.

its use for drilling holes; but it is certain that the Koryak, prior to the introduction of iron, were already using either a stone or a bone bow-drill to bore holes with. 401 321 It may be supposed that the holes in stone ear-rings must have been made by means of the drill.

Fig. 146 represents a saw made by the Reindeer Koryak for cutting reindeer-antlers. 326 412 321 It is made of sheet-iron by means of a file, after the pattern of imported steel saws. The teeth of the saw are very uneven.

Nearly the whole of the Koryak blacksmith's work is confined to the iron tools above described. 326 415 I should mention, in addition, the manufacture of kettles from imported sheet-iron by Koryak artisans. They beat these kettles out with hammers, and the bottoms are fastened on with mortise-locks, in imitation of the imported kettles, so that they arew ell suited for cooking-purposes. They do not make tin teapots, as they cannot solder on the spouts. The blacksmiths also make 412 pick-axes for picking ice-holes, marline-spikes, awls for sewing dog's harness, 326 scrapers for dressing skins,[1] paring-chisels, bracelets, and needle-holders.[2]

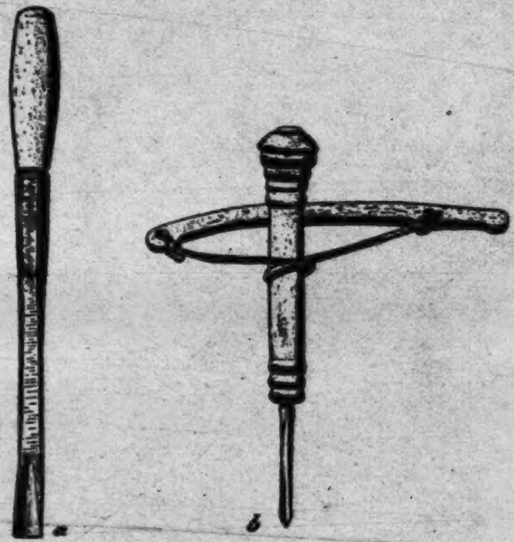

Fig. 145, a ([illegible]), Chisel (length, 25 cm.); b ([illegible]), Drill (length of drill, 30 cm.).

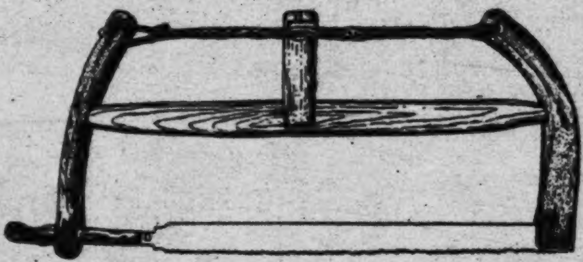

Fig. 146 ([illegible]). Saw. Length, 47 cm.

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[1] See Fig. 189, a.

[2] See also iron fish-hook (Fig. 79, p. 534), harpoon and arrow heads (pp. 546, 559), bird-dart (Fig. 95, p. 558), armor (p. 562), picks (p. 578), and ice-creepers (Fig. 30, p. 605).

1: Jochelson E-5 (1900-01) 1908 RY4 Koryak RY4

326 [301] [492] Two iron bracelets are represented in Fig. 147, *a* and *b*. Small iron bars, finished and ornamented by means of files, are hammered cold into bracelets. There are also twisted iron bracelets, which are made of iron rods heated red-hot and twisted with tongs. In Fig. 147, *c*, is represented an iron needle-case with iron pendants. For dog-harnesses the blacksmiths forge toggles, swivels, rings, and small chains as substitutes for those formerly made of bone. Files for smoothing iron are bought by the smiths from traders or in the Government depot. Sometimes they themselves make files of iron bars by means of imported files. The Koryak blacksmiths do not make iron nails, but they do manufacture iron rivets for patching kettles and other broken utensils.

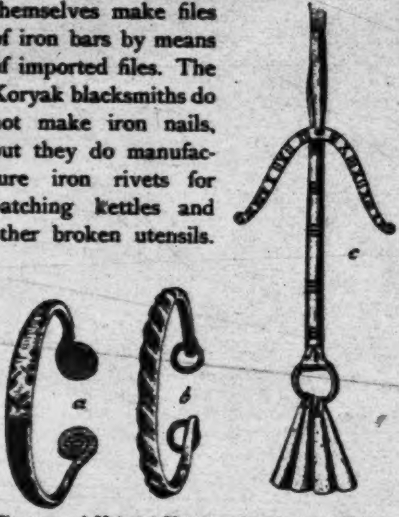

Fig. 147, *a* ([illegible]), *b* ([illegible]), Iron Bracelets; *c* ([illegible]), Needle-Case (length, 13 cm.).

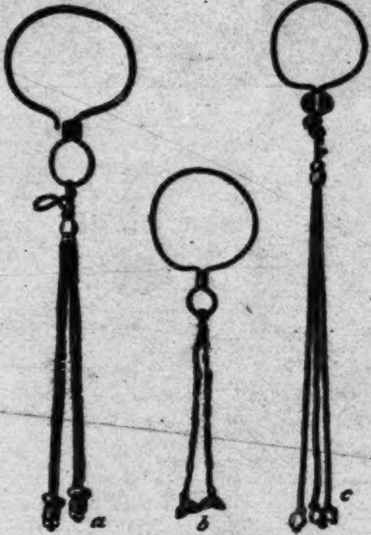

Fig. 148, *a* ([illegible]), *b* ([illegible]), *c* ([illegible]). Brass Ear-Ornaments. ½ nat. size.

326 301 Work in Copper, Brass, and Silver. — The Koryak work copper and brass in the cold state only. The production of objects wrought in this way is limited. As material for the work, imported sheet-brass, copper wire, and broken copper dishes, teapots, and kettles, are used. Of copper or brass wire are manufactured large ring-shaped ear-ornaments decorated with iron or brass pendants, or with many colored beads which are strung on sinew-thread. Fig. 148 shows three such ear-ornaments. The one marked *a* represents an open ear-ring prior to passing it into the ear; and *b* and *c*, closed ear-rings as they hang in the ears. Identical forms of ear-ornaments are found among the Tungus and the Amur Gilyak. The shape of these ear-rings, and their manner of manufacture, have undoubtedly been learned by the Koryak from the Amur tribes through the Tungus of the Okhotsk district, or they are manufactured in imitation of ear-rings brought to Gishiga from Vladivostok. The

same may be said of the metal bracelets. I have already described iron 326 bracelets. Two made of brass are represented in Fig. 149, *a* and *b*.

The jew's-harp shown in Fig. 149, *c*, is made of brass. Usually this 301 instrument is made of bone. The needle-case (Fig. 149, *d*) is made of two [534] gun-cartridges, and has brass and iron pendants.

The copper of worn-out teapots is used by the Koryak for patching and 326 riveting damaged copper vessels. Spears and large knives are inlaid with copper and partly with brass. 531 First the designs, representing chevron ornaments and various kinds of curves, are incised with a steel chisel. Then copper shavings are driven in with a hammer, and the weapons are smoothed off with a file.[1] 325

Silver-work, smelting, or cold-hammering are unknown to the Koryak; 171 though the blacksmiths of the Tungus and Yakut, the tribes nearest to them, work also in silver. The Tungus work is done cold only, while the Yakut have attained a high degree of proficiency as silversmiths. With a hammer they beat out various ornaments and other objects from pieces of silver; smelt silver in crucibles of their own manufacture, made of fire-proof clay, and then pour the smelted metal into moulds; make alloys of silver with other metals; engrave the most complicated designs on silver ornaments; and enamel silver after the style of the Circassians. The material for this work is supplied mainly by old silver objects and silver coins.[2]

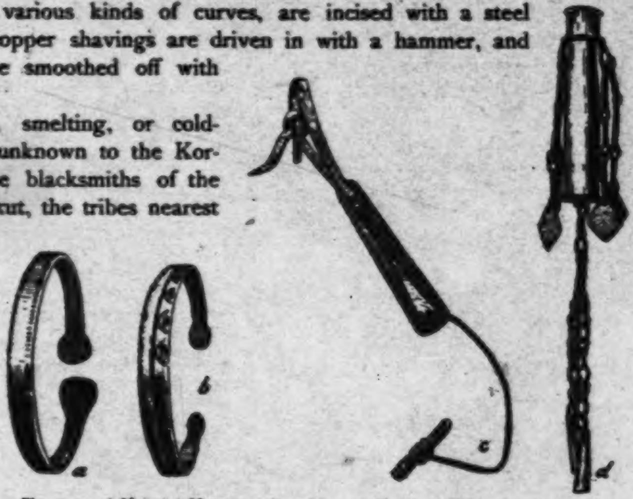

Fig. 149, *a* ([illegible]), *b* ([illegible]), Brass Bracelets; *c* ([illegible]), Jew's-Harp made of Brass; *d* ([illegible]), Needle-Case made of a Cartridge.

Tungus smiths hammer silver coins into small ornaments, such as ear-rings, rings, buttons, buckles, or little thin disks for breast-ornaments, and polish these with a file and soft leather made of reindeer-skin. The Tungus buy larger and more ornamental silver objects, such as belts, pendants for coats, and ornaments for hair-dressing, from the Yakut.

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[1] For ornamentation on knives and arms, see Figs. 142, 143, 185, 193, 195.

[2] In the Yakut Province, stories are in circulation that certain Yakut silversmiths reduce silver from ore, but carefully conceal the location of the mines. I could not verify the truth of these tales.

226 [476] with large nets sewn together from the smaller ones they owned individually.

Other methods of fishing included fishing with the aid of an iron hook (marik) and "dipper" nets. The fisherman stood up to his knees in water, holding in his hands an implement that looked like a large sack-net on a long pole. Sighting a fish, he quickly directed the net towards it, scooping it up and throwing it out on the gravel shore. This method was used in the beginning of the fish-run, before the cooperative set to work.

262 251 [462] Most of the catch went into the making of yukola. The fish were disemboweled and hung to dry on special racks. The yukola (fish dried in the sun and the wind) was put away in storehouses—tents on high piles, covered with dry grass. Yukola was usually made by women, while fishing was done chiefly by men. The yukola was the principal food of the people all year; it was also used as feed for the dogs, in addition to "pickled fish"—freshly caught fish piled into a pit, covered with earth, and left to ferment until needed.

224 184 An important auxiliary occupation among both sedentary and nomad Koryaks was hunting, which was done solely by men. The fur animals hunted were fox, wolverine, otter, hare and ermine.

[462] Fur-animal hunting was most important among the Palantsy, who lived in a region abounding in Kamchatka sable. These were trapped in nets. Other animals were hunted with guns. Foxes and smaller animals—yevrazhka hamster and ermine—were caught in springtraps. [883] The latter two were usually hunted by adolescent boys. Hares and partridges were caught with a noose. In early spring, many hunters took meat animals—bears, Siberian marmot, wild reindeer and mountain sheep. Tundra animals were usually hunted without the aid of hunting dogs, which were owned by relatively few hunters.

222 [462] An important role in Koryak economy was taken by the gathering of wild plants. The gathering of edible roots, grasses and berries was women's work. Roots were obtained chiefly from mouse-nests. Searching out a mouse-nest, the woman dug it up with a special wooden hoe and took from it the store of edible roots prepared by the mice. The berries gathered were blueberry, cloudberry and crowberry.

285 184 Grass was used to make inner lining for boots, and was also woven into mats, baskets, bags and purses. The weaving of variously shaped baskets, from those in the shape of bowls and trays down to small oval boxes with lids, and also bags of various shapes and sizes was especially developed among the Karagin and Alyutor women.

321 The men widely engaged in carving bone and the horns of wild sheep.

326 ● One of the villages of the northern coastal Koryaks—the village of Paren' on Taygonos Peninsula, was long known for blacksmithery. The Paren' blacksmiths reforged accidentally gotten pieces of iron into knives famed throughout the Koryak territory and beyond it. Even in the early years of the current century, the local Koryak population preferred them to imported Russian and American knives.

Housing

342 281 The dwelling of the reindeer-breeding Koryaks (yaranga) was a tent, similar to the Chukchi yaranga (called yayan'a in the Chavchuven dialect, and raran'a in the Alyutor dialect). Cylindrical at the base and conical at the top, it had a framework of poles and was covered with reindeer skins, with the fur outside. The pelts to be used for covering the yaranga were scraped a little; some of the flesh side was peeled off, then it was kneaded and smoked to make it waterproof. For summer dwellings, the hair was removed, or else worn, old coverings were used.

342

342 **DWELLINGS**--description of residential buildings; seasonal, local and status differences in dwelling types; durability and portability of dwellings; mode of construction; adequacy (e.g., for protection from elements, for security, for light and ventilation); typical number of occupants; ceremonies during and after construction; etc. See also:

Housebuilding specialists	33	Names of houses	552
Adequacy of housing	362	Household organization	592

532 reindeer from straying away, and, as often happens, from getting lost. When
788 a reindeer is slaughtered, the sacred fire-board is taken out and smeared with
233 blood. Instead of a grass collar, the Reindeer Koryak put on it a tie made of the hair from the mane of a reindeer-buck.

Among the Maritime group, as well as among the Reindeer Koryak, the sacred fire-board is connected with the family welfare, and therefore it must not be carried into a strange house. But if two families join for the winter and live in one house, in order to obviate the necessity of procuring fuel for two houses, both take their own charms along into the common house,
[428] without risk to their effectiveness by so doing. The sacred fire-board is usually transmitted to the younger son, — or to the younger daughter, provided her husband remains in his father-in-law's house and the brothers establish new houses for themselves or raise separate herds. Often fire-boards are found that have outlasted two, three, or more generations.

778 The Drum. — The drum (ya'yai), which, as will be seen later on, plays
534 an important rôle in ceremonials and shamanistic performances, at the same
592 time ranks with the sacred fire-board as one of the guardians of the household. The drum is the master of the sleeping-apartment where it is kept. Every married couple has a drum of their own. A bride who has her own sleeping-tents also possesses her own drum. The drum is especially held in esteem by the Reindeer Koryak. Just as a herd cannot exist without a sacred fire-board, so a family cannot get along without a drum.

778 Kamaks and Kalaks. — A large class of guardian charms are called
342 kamaks and kalaks,[1] — the same names as are applied to the hostile spirits described before.[2] It appears from this that these names do not always signify a thing harmful and evil, like the Yakut word abasy'.[3]

In distinction from the evil spirits, this class of "charm-guardians" are often called otkamak, or okkamak; that is, "wooden kamak." By the Maritime Koryak, the most important place among the wooden kamaks is assigned to the one considered as guardian of the inhabited place. It cannot, however, be called "guardian of the village," in the sense of guardian of the community, since the social organization of the Koryak is so loose that the term "community" cannot very well be applied. The wooden kamak (okkamak) is considered rather as a guardian of the habitation. He is also called Nɪmyo'lhɪn, which signifies "habitation," and he appears as a guardian or master of it.

The "guardian of the habitation" has the shape of a post, tapering at the top, and sometimes forked, the thinner branch representing the arm of the charm. It is located close to the village, usually on a hill overlooking

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[1] The Koryak plural of kamak is ka'maku. Since kamak has been used with an English plural (Bogoras, Anthropologist, p. 631), the English plural has been used here.

[2] See p. 27.

[3] Abasy' (*pl.* abasyla'r) means not only "evil spirit," corresponding to the Koryak kala or to the Chukchee kele, but everything harmful in nature.

it, or on a rock over the sea. It is put up by the founder of the "habitation;" 778
that is, by the one who erects the first house, and is passed by inheritance 342
to the descendants of the founder. As a rule, new settlements were founded by "strong men," heroes. Around the first house, and under his protection, weaker people would settle, usually his relatives by blood or by marriage; and the "guardian of the habitation" would become the common guardian of the settlement. As the latter grew, some of the house-owners would put up habitation-guardians of their own, which were, however, only family guardians. The general guardianship of the settlement belongs to the first guardian erected [6,21]
by the founder. It serves as the intermediary between the inhabitants of the village and the rulers of the sea and of the hunting-grounds. The lower part of the guardian-figure is girded with sacrificial sedge-grass. When the hunt of sea-animals, wild reindeer, and mountain-sheep, is over, the charm is smeared with the blood and the fat of the animals. The top of the charm, from the constant application of fat, turns black, and looks as though it were 778
charred. The charm is also offered sacrifices of horns and 782
antlers of animals killed in the hunt, and whale-vertebræ. On Plate XII, Fig. 1, a photograph is reproduced of the old guardian of the settlement of Kuel, surrounded with sacrifices. The priestly duties in relation to the guardian of the settlement are performed by a descendant of the founder, usually the eldest in the family. He smears the charm with fat, "feeds" it, and adorns it with sacrificial grass. In a year of successful hunt, the charm is sometimes offered a dog as a sacrifice. Fig. 4, represents one of the guardians of the village Big-Itkana, with a slaughtered dog near the charm. In the same village I saw a pup strung up as a sacrifice on the wooden kamak (okkamak) itself (see Plate IX, Fig. 1). The charm was a secondary guardian, the protector of one family, and consisted of a forked branch of a large willow-tree stuck into the ground. The village guardians differ in size, while the guardian of Big-Itkana (Fig 4) is about six feet high, that of Kuel (Plate XII, Fig. 1) is not over two feet.

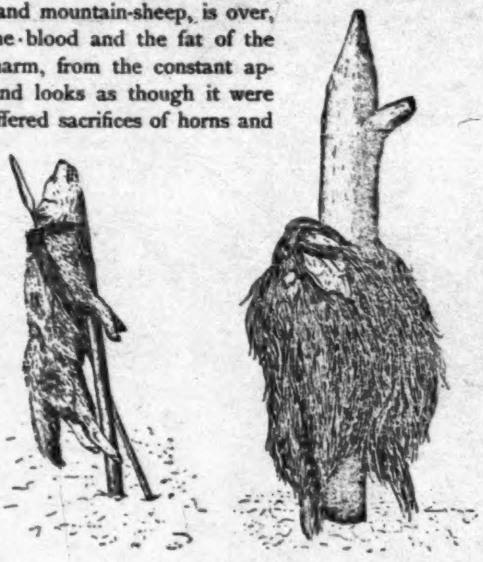

Fig. 4. Guardian of the Village Big-Itkana, with Sacrificed Dog. (From a photograph.)

778 592 501 from among those who do not own a boat, to assist him in his hunt; for not all families are in possession of a skin boat. It is considered a sign of prosperity to own one. The assistants get a share of the product, but are regarded simply as laborers, who work for their master. Sometimes they will give the owner of the skin boat seal-skins to mend the boat; but these are looked upon as presents to the owner of the boat, and he may dispose of them in any manner he may see fit. The first launching of the boat in the spring, and the last beaching in the fall, when it is to be put away for the winter, are considered as family festivals among the Maritime Koryak.

Charmed forked alder-twigs called iklō′ (*sing.* i′kla) are prepared in the spring, when the skin boat is launched, and are placed in the prow of the boat (Fig. 10, *a*). They are the comrades and assistants of the skin boat, and are supposed to attract whales and other sea-animals to it. In the village of Kamenskoye the "guardians" of the whale-skin are also called iklō.[1]

On the upper end of the prow of the boat is a small forked figure, placed with legs pointing upward, over which the harpoon-thong is pulled. A face is carved on the opposite end. It is considered the manager of the skin boat. The specimen here figured (Fig. 10, *b*) was an old boat-charm which, having been worn out by use, had been replaced by a new one, and which was deposited among the other *penates* of the house.

[532]

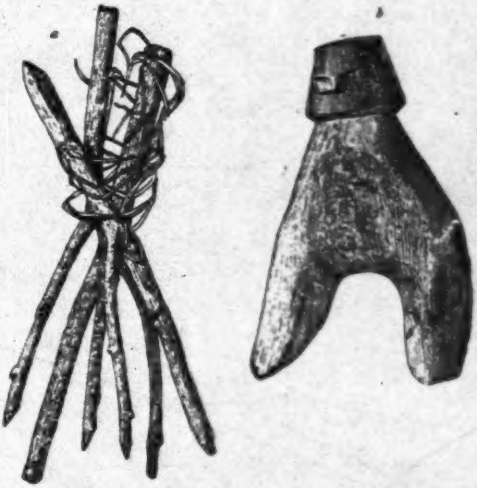

Fig. 10. Guardians of the Skin Boat. *a* ($\frac{70}{880}$), Forked Alder-Twigs representing Guardians in Human Shape (length, 23 cm.); *b* ([illegible]), Attachment to the Prow, representing the Manager of the Boat (length, 20 cm.).

778 417 342

THE LADDER. — The ladder which is used for the entrance into the winter house of the Maritime Koryak is also classed among the guardians of the house. A crudely carved human face is represented on the top of the ladder (Fig. 11). It is called Old-Woman (ı′n·pa-ña′ut). This guardian is apparently a woman. The image is also called Ye′ltitkin; that is, "the head of the ladder." The ladder is the master of the house-entrance. It is supposed not to allow any kamaks to get in. When the house is temporarily deserted, — for instance, when the people move to their summer dwellings, — the Maritime Koryak pray to the ladder not to 417 let any strangers or ill-meaning people enter the house. In the fall of 1900, 242 ● when I arrived at the winter village of Paren, it was deserted. 778 The inhabitants were still in their summer houses. I wished to inspect the winter houses; but my interpreter (a Russianized Koryak) and Cossack were afraid to descend into them until I had gone in and come back unmolested. From time to time the ladder is smeared with seal-blubber and other fat.

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[1] See p. 38.

Sacred Arrows. — Freqently an arrow, given as an offering 411 after a wolf has been killed, is found among the guardians of the 778 fireplace. Such an arrow (Iᵛlhun) is either driven into the ground at its butt-end, or it is tied to a pointed stick, which is driven into the ground, near the hearth. One of these sacred arrows is shown in Fig. 12. I obtained it in the Talovka settlement. It was completely blackened from the soot of the hearth.

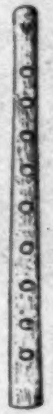

Fig. 11. Model of a House Ladder.

The Sun-Worm. — The doll shown in Fig. 13 represents 778 a guardian of women. It is hung up in the family sleeping-tent, 342 and protects lying-in women, and also prevents sterility. It is 325 [411] called The-Vivifying-One (Yeytele′ʟičičaⁿn). The women of the village of Kamenskoye, where I found this guardian, told me that a "worm" is sewed up in it. This "worm" is believed to fall down from the sky into the bag which women carry on their backs while digging roots. It then becomes the guardian of the woman into whose bag it falls. They call it Sun-Worm (Tiyk-Eli′ggi). I think this belief may be explained by the fact that in the spring caterpillars fall from the trees, and thus sometimes get into the baskets that women wear on the back while walking in the woods, picking dry branches, and digging up roots.

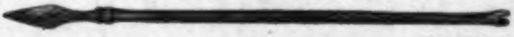

Fig. 12 ([illegible]). Sacred Arrow. Length, 66 cm.

Special House-Guardians. — Some charms are 778 3:53 called House-Kamak-Face (Yaya′-kamak-lŏᵉ), and represent special house-guardians. Two of these are represented in Fig. 14. The one marked *a* I got in the village of Kuel, and the other in the village of Paren. As the guardian of the house is regarded as the sacred board of the fire-making implements, it would seem that House-Kamak-Face is a supplementary protector of the dwelling, but not of the hearth. The guardian of the dwelling (Yaya′-Kamak-lŏ) is placed in the shrine (op-yan) and fed on different occasions.

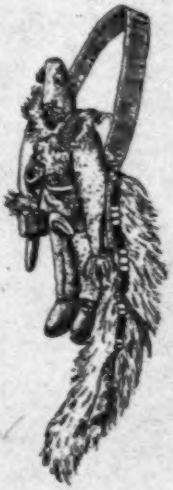

Fig. 13 ([illegible]). Woman's Guardian. Length of doll, 11 cm.

796 cut up in front of the village. The head of the white whale, as well as the heads of the two seals, were wrapped up in grass hoods, and put upon the roofs of the storehouses.

Next the inhabitants of the village made preparations for the festival. During the day a dog was slaughtered at the seashore as a sacrifice to the master of the sea. It looked as if the entire village had moved over to Qaivi'lok's house, the owner of the net in which the white whale was caught. The women spent all their time there, working. They plaited travelling-bags of grass for the white whale, made grass masks, prepared berries and roots, etc. By chance only one guest from a neighboring village was present at this festival, while it is customary for many visitors to come to participate in the whale festival. The communal character of this festival was also due to the fact that all the families belonging to the village set up their nets together, and that the flesh of the sea-animals was divided among them. Only the head and skin of the animals belonged to the man in whose nets they had been caught. But, although the white whale's skin was not divided, all participated when it was eaten in Qaivi'lok's
● 342] house. Many of the men and women spent all the time during the celebration in eating in Qaivi'lok's house, and even slept there.

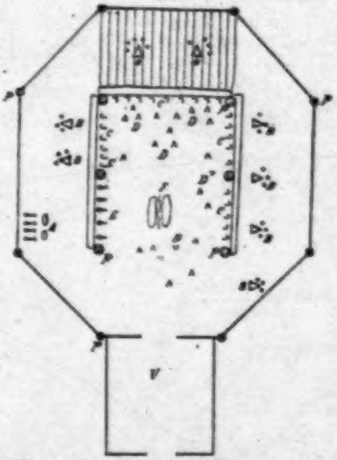

Fig. 29. Plan of Underground House, illustrating the First Part of the Whale Festival. *a*, The Shrine; *b*, Lamps and women cooking; *c*, Men sitting; *d*, Children; *e*, Place in which the writer and his companions were seated; *f*, Fireplace; *p*, Posts; *v*, Porch.

In the evening of the same day, Oct. 11, the first reception in honor of the guests (the white whale and the seals) took place. When I entered Qaivi'lok's house, accompanied by my wife and Mr. Axelrod, it was full of people (Fig. 29). The skin-covered sleeping-tents and the bedding had been taken out of the house. All around the house, in the spaces between the posts and the walls, the women were busy cooking, cutting up blubber, grinding and mixing spawn and berries, and cutting edible grasses and roots. The men were sitting in a half-circle near the posts, while the youths were standing or sitting on the ground, near the hearth. The space to the left of the entrance, as far as the first middle post, was unoccupied. In this section, near the wall, was the shrine (op-yan) in which were placed the charms, attired in grass neckties, — the sacred fire-board, the master of the nets, the house-guardian (yaya'kamaklō), the spear consecrated to the spirit of the wolf, and a few other minor guardians. Among them was a wooden image of a white whale (Fig. 30, *a*), in front of

1: Jochelson E-5 (1900-01) 1908 RY4 Koryak RY4

Jesup North Pacific Expedition, Vol. VI. Plate VIII.

● 342

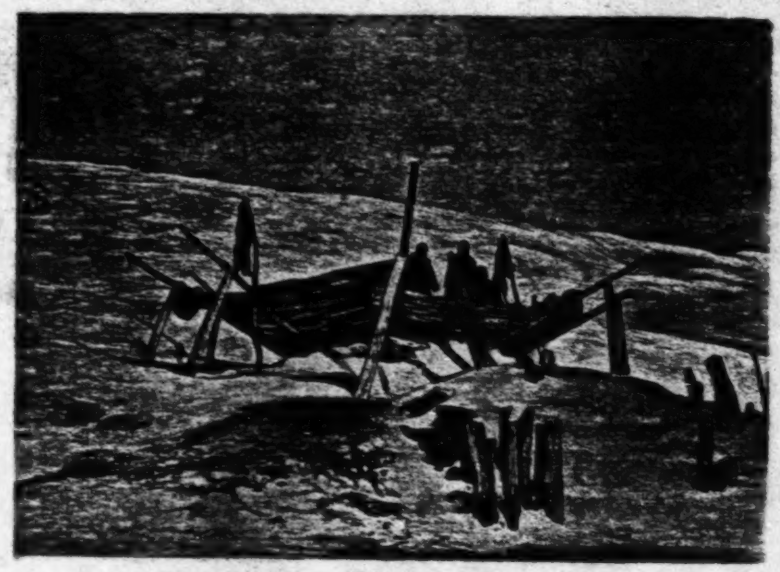

Fig. 1.

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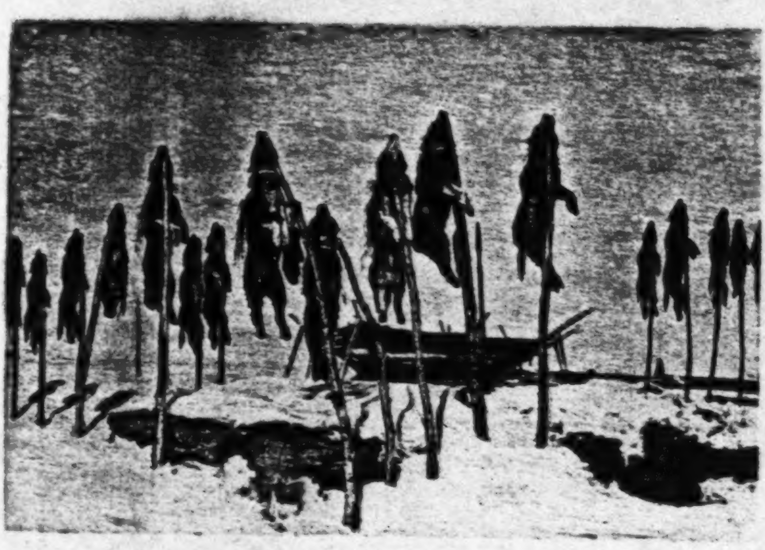

Fig. 2.

Underground Houses, with Sacrificed Dogs.

The Koryak.

[Facing p. 95]

IV. — HABITATIONS.

The Reindeer as well as the Maritime Koryak call their dwellings yaya'ñı 342
or ḷı'ge-yan[1] ("genuine house"). The Maritime Koryak call the tents of the 174
Reindeer Koryak ča'učewyan ("Reindeer people's house"), while the latter call the dwellings of the Maritime Koryak wa'ḷxai ("jaw-bone [of a whale] house"). This name is of great interest. From it the conclusion may be drawn that in olden times the Maritime Koryak used for the construction of their underground houses bone of whale,[2] which is still used by the Eskimo.

Remains of underground dwellings the framework of which was of bone of whale were seen by Wrangell and Nordenskiöld along the shores of the Arctic. Mr. Bogoras saw ruins of such houses in the villages of the Maritime Chukchee and Asiatic Eskimo on Bering Sea. These houses are called by the natives wa'ḷkar, which also means "jaw-bone house."[3]

REINDEER KORYAK. — The dwelling of the Reindeer Koryak consists of 342
an outside tent and an inner sleeping-tent. The frame of the outer tent is 171
built after the type of the movable dwellings of the nomad Mongol and Turkish tribes of Asia; such as the cattle-breeding Kirghiz and Kalmuk,[4] who cover the frame of their tent with a felt covering, and the reindeer-breeding Tungus,[5] who use birch-bark or reindeer-hide for the same purpose.

The characteristic feature of this type of dwelling is its construction in two parts; the lower part being cylindrical, and the upper part or roof conical, in shape. The Koryak reindeer-skin tent, however, is clumsier and heavier than the felt habitation (kibitka) of the Kirghiz, and the leather or birch-bark dwelling of the Tungus. The lower part of the outer tent of the Reindeer Koryak does not form as regular a circle as do the lower parts of the tents of the above-mentioned tribes. Still it is more symmetrical than that of the Reindeer Chukchee, which, on the whole, it resembles.[6]

The frame of the outer tent (yaya'ñı) of the Reindeer Koryak consists, 342
first of all, of three foundation-posts (Fig. 59), or ye'ḷxel, arranged in the form of a tripod, and tied together at the top by means of strong thongs.

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[1] In the Chukchee language ḷı'ĕ-ran

[2] I found no ribs or jaw-bones of whales in the framework of the excavated ancient underground house of the Koryak in Gishiga Bay, while bones of whales were scattered all round the pits of the old dwellings.

[3] See Bogoras, The Chukchee, Vol. VII, of this series, p. 180.

[4] For a detailed description of the dwellings of the Turkish and Mongol tribes see the interesting paper of N. Charusin, The History of the Development of the Dwellings of the Nomadic and Semi-Nomadic Turkish and Mongol Tribes of Russia (Ethnographic Survey, Journal of the Ethnographic Section of the Imperial Society of the Friends of Natural History, Anthropology, and Ethnography [Moscow, 1896], Vol. XXVIII, No. 1).

[5] A detailed description of the different types of Tungus habitations will be given in my work on the Yukaghir.

[6] See Bogoras, The Chukchee, Vol. VII of this series, p. 169.

342 The height of these poles, upon which depends the height of the dwelling, varies from 3.5 metres to 5 metres, according to its size. Around this tripod are placed, at a distance apart of from one to two metres, strong stakes (*b*), in sets of two or three, from 1.3 to 1.5 metres in height.[1] The upper ends of these stakes are tied together with thongs passing through holes. To the tops of these poles are tied the ends of horizontal wooden bars, or wă'yeye'lxalu (*c*). These cross-bars with their supports constitute the lower, circular part of the frame. However, as I pointed out above, the lower part of the frame does not form a regular circle, as the cross-bars are too heavy and long. When uncovered, they look more like beams forming the sides of a polygon; but the heavy reindeer-skin cover of the frame conceals to a great extent the angles formed by these cross-bars.[2]

The conical part of the frame is composed of slanting poles, or yevi'ne (*d*), extending from the middle of the cross-bars (*c*) and from the tops of the tripods (*b*) towards the top of the foundation-posts. By means of thongs both ends of these poles are securely fastened to the corresponding parts of the frame. The following parts also belong to the frame.

Poles (*e*), the lower ends of which are driven into the ground, and to whose upper ends are fastened curved pieces (*f*) which serve to prop up the cover. The ends of these curved pieces are tied to the roof-poles by means of thongs. The number of these stretchers (*e*, *f*) depends upon the size of the tent. In a medium-sized tent there are from three to four.

Poles (*g*) with their cross-bar (*h*), which serve for suspending the kettle over the hearth.[1]

Stakes (*i* and *k*), which are usually placed before the entrance of the winter tent to protect it from snow-drifts. These stakes serve as the frame of a small entrance-room, which is covered with reindeer-skins; but such entrance-rooms do not occur often.

The frame of the Koryak tent is very substantial, and capable of withstanding the strongest wind. The thongs which connect the wooden parts make the tent flexible and elastic. During a heavy snow-storm the tent creaks and shakes like a ship at sea; but when the storm is over, it settles back as firm as ever, unless the wind should have broken the lashings. In a frost following thaws, the thongs become hard, and are liable to break. The tent-cover (xeče'getǒl), if it is well secured to the frame, in its turn keeps the frame firm, and protects the poles and stakes from the wind.

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[1] Fig. 59 represents a model of a small tent, with a single inner tent. In place of the central tripod, we find here a separate kettle-stand (*g*). All large tents have the central tripod described above. It serves at the same time as a kettle-stand.

[2] The lower part of the tent of the Tungus and of the Kirghis is, on the contrary, of a more regular cylindrical form. In the Tungus tent the cross-bars consist of round thin and short sticks, and in the Kirghis tent the crossbars are curved.

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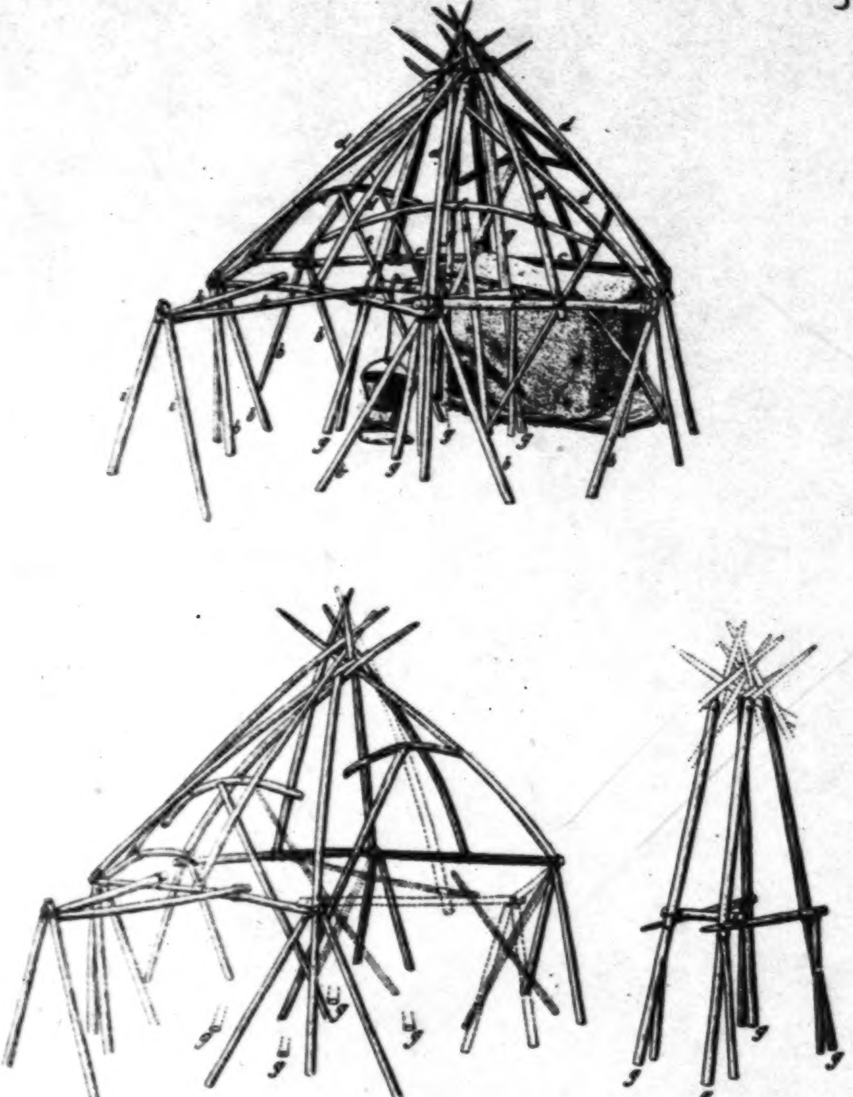

Fig. 59. Complete Framework, Outer Framework, and Kettle-Stand of Model of Tent.

342 The cover consists of reindeer-skins sewed together, with the hair side out (Plate XIX, Fig. 1). Worn-out skins which have previously served for the inner tent are used for making this cover. In order to lessen its weight when moving from place to place, the hair is clipped close with a sharp knife. It is made in two or more pieces. The upper part of the cover, where the smoke accumulates, is made of much-worn skins sewed together. The lower parts, consisting usually of two pieces, are attached to it. The ends of the cover overlap on the entrance side of the tent. Inside, the parts of the cover are fastened firmly together and to the stakes and poles with thongs. The lower ends of the cover are tucked under, and weighted down inside the tent with stones and heavy bags filled with clothes, or with loaded sledges. Outside, around the cylindrical and conical parts, as well as up and down, the cover is fastened with thongs the ends of which are attached to loaded sledges surrounding the tent and to stakes driven into the ground or the snow. Water is poured over the snow around these stakes, which freezes and thus makes the snow a solid, resisting mass of ice. Light driving-sledges, when not in use, are tied to the roof of the house, thus fastening the cover to the frame.

342 513 The Koryak outer tents are usually more spacious than those of the Chukchee. Several Koryak families live in one tent. The sleeping-tents are placed all around the inner space of the tent, with the exception of the entrance side.

171 The Chukchee have usually only one sleeping-tent, near the wall opposite the entrance, for unrelated families do not live in the same tent. For this reason the sides of the tent are drawn closer together. The front part with the entrance looks as though it were truncated; and the back part, which contains the inner tent, is extended backward. The diameter of a large Koryak tent is from eight to nine metres. The middle space is so taken up with poles and stakes that it reminds one of the scaffolding of a building in course of construction. The hearth is not placed in the centre of the tent, as with the Tungus, but is on the middle of a line drawn from the front wall of the sleeping-tent in the rear to the entrance. The opening for the smoke (see Plate XIX, Fig. 1) is therefore rather in the direction of the slope of the roof on the side of the entrance. The back part is covered to the tops of the poles.

While, in other Asiatic movable tents of the type here described, the inner tent serves as a bedroom only, among the Koryak and Chukchee it serves as a living-room also, particularly in winter. The inner tent (yoyo'ñı) is in the form of a rectangular box placed upside down. It is made of the dressed hairy skin of full-grown reindeer killed in the fall, with the hair side in, and is sewed with sinew-thread (see Fig. 59).

I did not see among the Reindeer Koryak such spacious inner tents as

1: Jochelson E-5 (1900-01) 1908 RY4 Koryak RY4

Jesup North Pacific Expedition, Vol. VI. Plate XIX.

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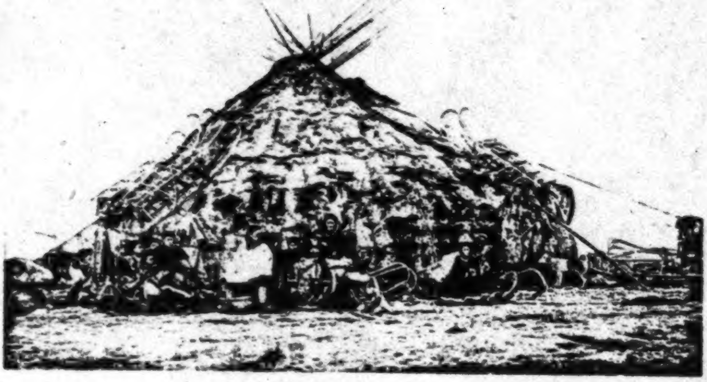

Fig. 1. Tent of Reindeer Koryak.

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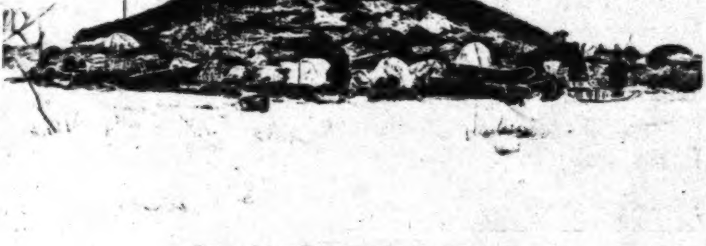

Fig. 2. Large Tent used during a Fair.

The Koryak.

[Facing p. 450]

● 342 I saw among the rich Reindeer Chukchee of the Kolyma River, in which it was
513 possible to stand up comfortably. The height of the Koryak inner tent varies
from 1.3 to 1.5 metres; its length, from 2 to 4 metres; and its width, from
171 1.3 to 2 metres. To the upper edges of the longer walls, thongs are fastened, by means of which the rear part of the tent is attached to the cross-bar of the frame of the outer tent. The front part, facing the hearth, is tied to a stake (Fig. 59) resting on the cross-bars attached to the frame of the tent.

The floor of the sleeping-room is strewn with willow-branches covered with reindeer-skins. The lower parts of the cover on the rear and side walls of the inner tent are tucked inside, and the bedding is placed upon them; while the cover of the front wall is tucked under only when the inmates go to bed.[1] I shall dwell here only on the difference between the Koryak and the Chukchee in the use of the inner tent.

356 The Koryak seldom break up their inner tent in order to beat it on the snow and dry it. They dry it during the day by lifting up the front part of the cover. Thus the dampness collected from the exhalations of the sleepers during the night, and lodged in the hair of the skins, and the vapors rising from the tea and warm food, mixed with dirt and fat, are only partially dissipated during the day. For this reason the inner tents of the Koryak are dirtier than are those of the Chukchee.

512 In the evening the inner tent is closed, the lamp is lighted, and the
family drink tea and take supper. At this time the skin dwelling gets heated
362 to such a degree that the men strip off their coats and remain half naked.[2]
During the night the fur sleeping-tent gets cooled off, so that the temperature inside is but three or four degrees higher than that prevailing outside.

362 A Koryak tent seldom has less than three or four inner sleeping-tents.
The master, the families of his relatives and of his herdsmen, live in the
571 same tent; and often members of the same tribe, not related, but wandering
together, live in one tent.

During the fair on the Palpal (see Plate XIX, Fig. 2) the Reindeer Koryak put up one common tent with two hearths placed like the foci of an ellipse, and with a passageway, on the two sides of which were sixteen inner tents (eight on each side). Over a hundred persons occupied this tent, the longer diameter of which exceeded twenty metres in length. Kennan[3] mentions a large tent of Reindeer Koryak in northern Kamchatka in which he counted twenty-six inner tents. I had no chance to see tents accommodating so many, except the one at the fair. The large tent of the Taigonos elder (see Plate XIX,

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[1] For a detailed description of this dwelling, see Bogoras, The Chukchee, Vol. VII of this series, p. 169.

[2] It is curious to note, that, while the Chukchee women take off their clothing down to the waist-line, even in the presence of strangers, the Koryak women are too modest to do so in the presence of company.

[3] See Kennan, p. 197.

342 571 Fig. 2) had six sleeping-tents for thirty people. Among them were eleven persons not related to him, — herdsmen and their families.

34·2 The difference between the summer and winter tents is in the quality of the cover. For winter it is made of better and heavier skins. All holes and openings in it are sewed up and covered over, and the snow is piled up all around the tent. The inner tent for summer is made of old skins with the hair clipped short. Among some Reindeer Koryak of the Taigonos Peninsula I saw inner tents made of dressed reindeer-skins, like those of the Tungus.

354 To my mind, the Koryak tent with its inner sleeping-place appears to be a compromise between the tent of the Asiatic nomads and the snow-house of the Eskimo. The inner tent is illuminated and partly heated by a lamp fed with reindeer-fat, like the oil-lamp of the Eskimo house; while the hearth of the outer tent is intended for cooking mainly.

621 Except on particular occasions, when Reindeer Koryak assemble in numbers, either for purposes of trade or for the celebration of festivals, a camp (ya´mkən, "people," the Koryak term for a camp of Reindeer people) is seldom composed of more than three tents. At least, I have never seen any more populous camps. A camp (see Plate xxi, Fig. 2) is usually composed of families, or groups of families, connected by ties of kinship (by blood or by marriage); or of a wealthy reindeer-owner and the families of his herdsmen; or of families not at all related to one another, but who, for the convenience of common pasture-grounds and the supervision of the herd, have combined their small herds.

621 221 The camp does not move from place to place as frequently as the Arctic nomads are supposed to do. There are four main removals during the year. Towards winter, in October, they put up their tents in the river-valleys, under the protection of high banks, among poplar and aspen groves. In spring, at the end of March, before the fawning-period begins, they descend into the open tundras of the lower courses of rivers, which are covered with lichen. In summer, in the month of July, they ascend the mountains to be near the river-sources. In the fall, at the time of the fawn festival, they return from the ridges to the elevated tundras of the watersheds and the river-valleys.

Other removals depend upon special causes; for instance, the exhaustion of pasturage, the prevalence of an epidemic among the people, or of some disease that attacks the reindeer; and sometimes the removal is for purposes of trade.

722 In olden times, according to tales of the Koryak, when an attack by a hostile neighbor was anticipated, and also during the wars with the Russians, the camps were surrounded by sledges, and the reindeer were driven inside of this fortified camp.

Maritime Koryak. — Like the tent of the Reindeer people, the dwelling of the Maritime Koryak is called, besides lı´ge-yan ("genuine house"), also

yəyáñi.

030 yaya'ñı. It is an underground, or rather semi-underground, solidly built,
342 permanent dwelling-place. It is of wood, mainly of poplar or aspen, which
313 grows to a considerable height even along the lower courses of the rivers of the Koryak territory. The Koryak float the timber down in summer to the mouths of the rivers; and sometimes they use driftwood. Driftwood carried down by the current from the river-heads may be found mountain-high in the bays and at the mouths of the rivers.

342 The dwellings vary in size according to the number of inhabitants. Small houses occupied by a family of from five to eight persons may be found
571 frequently. From excavations undertaken by me on the sites of ancient
174 settlements in Gishiga Bay, it appears that in olden times the underground houses were more spacious than those of the present time. Families separated more rarely, and all relatives used to live together. The average number of occupants of one house at present is from six to thirteen. Out of 110 underground houses on the shores of Penshina Bay, of which I took a census, in only one (in the Paren settlement) did I find twenty-one persons, and they comprised two families. According to tales of olden times, there were formerly underground houses occupied by as many as forty persons. Among the Kerek we still find twenty-five persons in one house.[1] A house in Mikino (Plate xx) inhabited by fifteen people was found to be 15 metres long (not including the entrance-room), 12 metres wide, and 7 metres high. Such a house is somewhat larger than the average present-day underground house; and those but half as large, or even smaller, may often be found.

342 In order to build an underground house, a circular hole from 1 to 1.5 metres deep is dug, in which the walls are put up in the form of an octagon. The octagon is not equilateral. The sides *a* (Fig. 60) are longer than *b*; and the sides *c* are half as long as *b*. Eight poles (*P*) about as long as the height of a man are driven into the ground at the eight corners. Between the poles two vertical rows of split logs, or large poles, or round stakes, are driven into the ground, and the spaces between them are filled in with dry grass. The tops of the eight outside corner poles (*P*) are notched, and

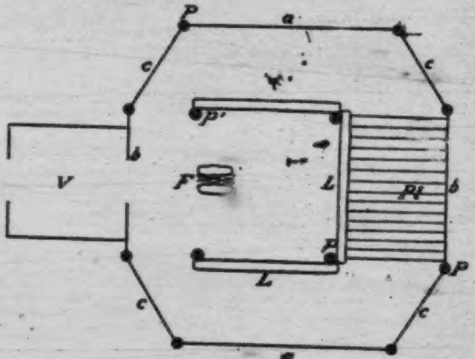

Fig. 60. Plan of Underground House.

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[1] See p. 440

1: Jochelson E-5 (1900-01) 1908 RY4 Koryak RY4

Jesup North Pacific Expedition, Vol. VI. Plate XX.

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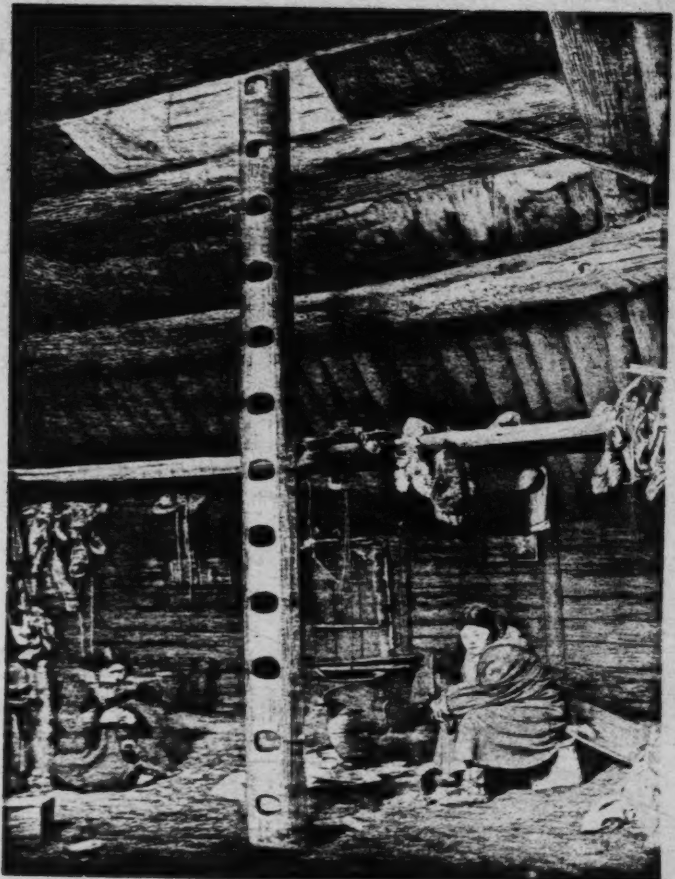

INTERIOR OF SUBTERRANEAN HOUSE.

The Koryak.

[Facing p. 453]

into the notches wooden cross-beams are placed. Each pole holds the ends of two cross-beams. The upper ends of the inner vertical poles forming the walls are fitted into grooves in the cross-beams. In some houses, one row of the wall-boards, either the inner or the outer one, is set horizontally, and fits into grooves in the corner poles. When the vertical walls are thus prepared, they are covered to the top with earth taken from the hole (see Fig. 61, *s*).

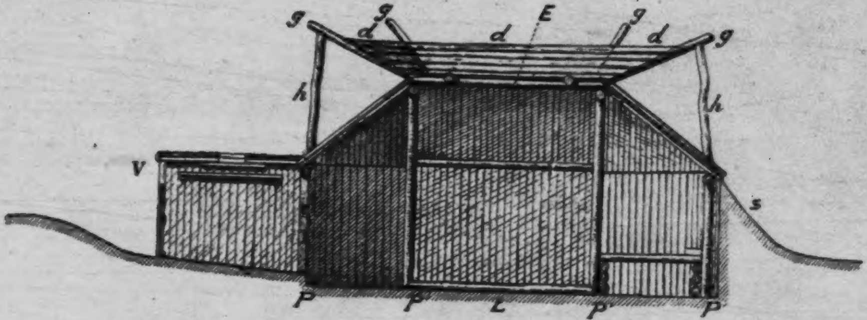

Fig. 61. Cross-Section of Underground House.

Four main posts (*P'*) are driven into the ground in the middle space enclosed by the walls (Figs. 60 and 61). These posts support the roof of the house, and form a square. In large houses the diameter of these posts is more than 30 cm., while their height is from 5 to 7 metres and over. Into the notches on the top of these posts two beams are placed, across the grooved ends of which two other cross-beams are fitted and lashed. These four cross-beams together form a square frame. One pair of such beams resting on the posts may be seen in Fig. 61. From these beams, slanting down to the top-beams of the walls *a* and *b* (Fig. 60), poles of poplar or aspen logs split in two are placed, thus forming four sides of the roof. The triangles between the cross-beams *c* and the inner posts *P'* (Fig. 60) are covered with stakes of varying sizes, the lower ends of which rest on the beams *c*, and the upper ends on the extreme side-logs of the rectangular slopes.

All the crevices between the poles are carefully filled up with dry grass and loose earth, and on top is placed a row of cleft logs. In this manner the slanting roof of the house is formed. From each corner of the square frame formed by the four main inner beams, two posts rise obliquely (see Figs. 61 and 62 *g*). Their lower grooved ends rest on the beams on each side of the corner posts. They diverge widely, and their upper sides rest on posts (*h*) which are grooved at the top for this purpose. These posts, called tivo'-aivq'gıl, are driven into the ground outside of the house. Logs (*d*) are placed on the poles *g* (see Figs. 61, 62). This structure (see Plate XXII, Fig. 2), consisting of three parts *g*, *h*, *d* (Fig. 61), has the appearance of a funnel, or of an umbrella turned upside down, and placed over the square frame on top of the roof. This funnel is called, in the Koryak language, ti'votıl, and is built for the purpose of protecting the upper entrance to the underground house from the drifting snow piled up by the raging winter storms. The snow driven by the gale from any point of the compass whatsoever strikes against the lower part of the funnel, and is scattered in all directions.

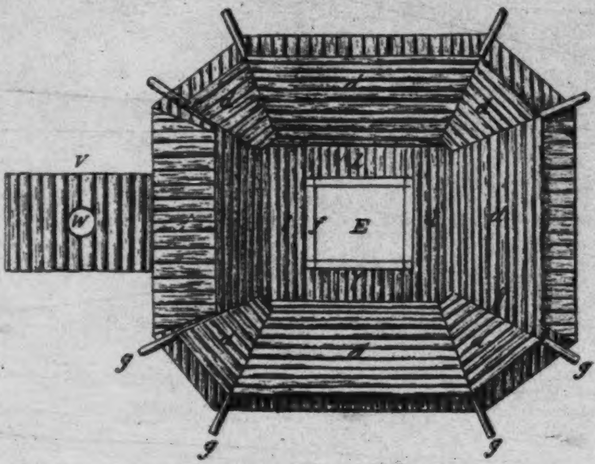

Fig. 62. Roof-Plan of Underground House.

Inside of the funnel is the square upper roof with the square winter entrance in the middle (see Fig. 62). The upper roof (Fig. 62, *l*) consists of logs covering the frame made of the four top beams, and forms the bottom of the walls of the funnel. In the middle of the roof a square well-shaped opening, each side of which is about 1 metre long, is made. This is the winter entrance (čina'ugičñın), through which, by descending a ladder (yičigit), people enter the house (Figs. 61, 62, *E*). This opening serves at the same time as a smoke-hole. The poles of the flat roof are double, like those of the slanting roof, and the open spaces and crevices between them are filled with dry grass and earth.

One side of the funnel, which is above the roof of the narrow passage serving as an entrance-room (Fig. 62, *V*), is narrower and lower than the others. A ladder is placed against it for the purpose of getting up from the roof of the entrance-room to the upper roof of the house (see Part I, Plate VIII, Fig. 1; see also Plate XXIII, Fig. 2). The entrance-room is a narrow covered passage leading into the house. It is also excavated. Four short straight posts are driven into the ground, with stakes placed between them, forming two side-walls. A low door is made in the front wall. The wall of the house serves as the rear wall of the ante-room. A small door is placed in that wall also. Both doors turn on wooden hinges. Cross-beams are

342 placed upon the posts of the ante-room, and on top of them are horizontal poles forming the roof, which is covered with earth. The two side-walls of the entrance-room are covered outside with earth up to the top (see Part I, Plate VIII), so that the roof of the ante-room is accessible without a ladder. The height of the passage is hardly that of an average man. I had to stoop considerably to pass through the ante-room into the house. The door leading from outside into the entrance-room, and that leading from the entrance-room into the house (see Fig. 61), are each only a little over 1 metre in height, so that one has to stoop very much to enter the passage and the house.

The dirt floor of the entrance-room slopes slightly down toward the door leading into the house. At the entrance from the ante-room into the house there is a threshold. The dirt floor of the house is on a somewhat lower level than that of the ante-room. The entrance-room, or passage, is called ya'xel.

The door leading from the entrance-room to the house is in use only during the fishing and sealing season, — from the early part of May till the end of October.[1] In October, when the skin boat is taken out of the water and put away for the winter, the entrance to the passage is closed up. It is first covered with grass, then earth is put over it, and pressed down with heavy logs (see Fig. 182 and Plate XXIII, Fig. 2). The custom of shutting off the door for the winter might be very simply explained as due to the wish to avoid the unpleasant necessity of constantly clearing the entrance from snow-drifts.

In the Kamenskoye settlement my wife and I occupied a small Russian log-cabin belonging to a cossack who was absent at that time, and we had ample opportunity of experiencing the inconveniences of this type of dwelling in that climate. Every wind, violent or not, would cover our house with snow to the top, and we were fastened in until my men (a cossack and an interpreter), who slept in a neighboring Koryak house, came, together with Koryaks, and cleared away the snow from our door.

784 342 But the Koryak attach a religious importance to the custom of closing up the lower entrance during winter. It is sinful, they say, to go into the house through that entrance in winter-time. However, none of the Koryak were able to explain the meaning of this taboo, and but one offered a plausible explanation.

Just as the entrance to the tent of the Reindeer Koryak faces the side where the sun rises, so does the lower entrance to the house of the Maritime Koryak face the sea. In summer the door of the lower entrance is open in order to give free access to the sea-mammals, as though they were visitors; but if, without any cause, the door should be left open in winter, when all

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[1] Schrenck's (II, p. 25) statement founded upon verbal information given by Baron Maydell, that the Koryak enter the underground house through the entrance-room only once during the year, is inexact. Baron Maydell was apparently misinformed (see Part I, p. 14).

hunting for sea-mammals is at an end, then the animals would avoid that 784
house the next summer, and the occupants would be unsuccessful in their 342
hunt. The lower doors of the houses which are occupied only during winter
are, for the same reason, not opened at all.

When the lower door is walled up, a ladder is placed vertically on the 342
floor of the house, rising toward the side *f* (Fig. 62) of the entrance-place in
the roof (see Plate xx). The ladder is made from half of a split poplar-tree. 417
On the side where it was cleft, that is, on the back of the ladder, the wood is hollowed out like a trough, that it may be easily grasped with the hands. Instead of steps, holes are cut through at distances of from 30 cm. to 40 cm. apart. These holes are like flattened disks in form. They are large enough for the small feet of the Koryak, particularly those of the women, and children's feet would enter up to the instep; but my feet, in shaggy winter stockings and boots, could hardly get through them. On ladders with small holes I had to get up by the tips of my toes only. Once, as I remember, the fur toe of my boot slipped off the step, and I should have fallen down into the house from a height of five metres, had I not clutched the ladder with my hands, and in this manner slid down. Once my cossack, carrying in one hand a bowl of flour for dinner, was going down into the house. In changing the bowl from one hand to the other, he let go of the ladder, and, losing his balance, fell into the house flat on his back.

Occasionally a Koryak falls from the ladder; but as a rule they run up the ladder carrying heavy loads in one hand, their children on their backs, or with heavy buckets of water, or with pails filled with hot soup for the dogs. It is particularly interesting to see how skilfully they strike the holes, coming down without even looking at their feet. Children three and four years old climb up the ladder as quickly as squirrels, and slide down on their hands to save time. Such a way of sliding down is not quite safe, as I found out for myself. The ladder is planed smooth, so that the hands shall not get hurt by splinters. In course of time it becomes covered with a layer of fat mixed with soot, which makes it look as though it were covered with a dark, glossy varnish. The edges are so slippery on this account that it is quite impossible to hold fast to the ladder with the hands, particularly if they are mittened. If one foot slips out of a hole before the other has had time to get into the next, a fall is likely to follow. In such case, one should by no means let go of the ladder, or he will surely land in the house on his back.

In houses occupied all the year round the ladder is removed in summer, [788
and put away on the floor of the house, near the wall, until the next autumn.
When the ladder is put up, it is anointed with fat, and charmed, in order that it may not admit any evil spirits into the house. As we have seen before,[1] the ladder is one of the family guardians, and its top is carved in

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[1] Part I, p. 43.

342 417 the form of a human face. The top of the ladder rises about 1.3 metres above the opening, so that it can be grasped with the hands when one begins to descend. The ladder is fastened with thongs to the entrance-hole (Fig. 62, *f*), lest it should shake or fall backward; and it is placed nearer to the left-hand corner, when facing the side *f*. This is done to prevent articles or heavy loads carried in the right hand from striking against the right side of the frame of the entrance-opening. The vertical position of the ladder is accounted for in the same way; namely, that buckets, loads, or children carried on the back may not strike the rear side of the frame of the opening. Very heavy or bulky articles are lifted up, or let down, into the house, by means of thongs.

354 342 The hearth usually consists of two oblong stones placed on the dirt floor at a distance of about 50 cm. from each other (see Fig. 60, *F*). The fire is made of wood in the space between them. The hearth is about 50 cm. from the ladder, toward the entrance-room. Whether going in or out of the house, a person always faces the fire. The smoke escapes through the entrance-opening in the roof. Cinders and hot air also rise from the hearth, and escape along the ladder through the opening. The upper part of the ladder becomes so hot while there is a fire, that it burns the hands.

At first we had a very hard time getting down into the house while the fire was burning. As soon as we put our feet upon the ladder, the smoke blinded our eyes, and the heat nearly took away our breath; but after getting over the first trying moments, and as soon as we had descended a little, we felt relieved. The Koryak, however, do not experience any discomfort from having the opening serve the double purpose of a means of exit for people and of escape for smoke.

The arrangement for a draught is as follows. The door leading from the house to the entrance-room, even in winter, is left open, for the entrance-room serves also as a cold-storage place. Seals killed late in fall are put away there, and also blubber, berries picked for winter use, frozen fish, and other provisions. Shelves (see Fig. 61) are arranged there for this purpose. Owing to the exigencies of the climate, a part of the provisions has to be kept near at hand; for during violent winds it is difficult, especially for women, to get out to the store-houses, which are built on poles. A round opening sufficiently large for a man to get through is left on the roof of the entrance-room (see Fig. 62, *W*). This opening is called na'učñın. Women and children often get in and out of the house through this opening, in order to avoid going up and down the ladder. The men consider it incompatible with their dignity to enter the house through this opening. In olden times, men "transformed" into women (kavau[1]) used to go in and out through this opening. Provisions, dogs' harness, and other articles, are lowered down through it. Besides, it serves as a draught-hole.

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[1] See Part I, p. 53.

When the fire is not burning in the house, the entrance-room door is closed and the opening on its roof is stopped up by a plug plaited of the stems of *Elymus mollis*. When the fire is started, the plug is removed from outside, placed upon the roof of the entrance-room, and the door leading from the latter into the house is opened. Thus a current of cold air forces the smoke upward into the roof-hole; but, since the opening is not directly over the hearth, the smoke strikes the ceiling, and spreads over the upper part of the house. When sitting on the floor, it is possible to remain in an atmosphere which is not charged with smoke. For instance, I could easily take notes when sitting on a log; but when I stood erect, taking anthropometrical measurements, while the fire was burning, my eyes would begin to water. During very violent or irregular winds, a return-draught or a changing draught is formed, and the house becomes completely filled with smoke. 342 354 [137]

In the fall the Koryak chop driftwood into thin billets, and put them upon the roof around the funnel, except on that side by which the people ascend to the roof. This is done in order to have handy a supply of wood during severe snow-storms, which often rage for several days in succession, when it is utterly impossible to get out of the house. Of course, in good weather the supply of wood is sometimes renewed in winter. The wood is split into small bits to secure a fire quickly. [313]

When the fire is first started and the entrance-room door is opened for the draught, the cold air strikes the feet, and the house is quite cold; but after the wood has burned out and the draught is shut off, the house begins to grow warm. It gets very warm when only red coals are left on the hearth and the smoke-opening is covered up. The temperature sometimes reaches 20° Centigrade. When the entrance-opening is covered up, the heat remains for a considerable time. During the night the house gets very cold, and the temperature in the morning is often below zero. Thus the temperature drops between the times when the fire is made. To save fuel, the fire is not made often, only two or three times during the day. It is made invariably in the morning directly after getting up, and in the evening, before going to bed, — at the time of the two main meals. During the day, fire is sometimes made in order to prepare tea, or if company should come.

The Maritime Koryak dwelling, compared with the tent of the Reindeer Koryak, provides the people with good shelter from frosts and winds. I think, therefore, that this type of Arctic dwelling is more ancient than the tent, which must have appeared in the far northeast of Asia together with the domesticated reindeer.

The cover used for shutting the roof-hole is made of boards tied to two cross-pieces by means of thongs drawn through holes. The cover is somewhat wider than the square opening of the entrance. A half-circular section is cut out at the side for the ladder to pass through, and thus the entire opening

342 354 is covered up. During the day, however, the entrance is seldom closed, since people are constantly coming and going. In the evening, after all are in bed, the entrance is always covered up. The one who closes it gets up the ladder, and with his hand pushes out the cover from below over the opening. Of course, crevices enough remain for ventilation.

The cover of the entrance-opening also serves to regulate the draught while the fire is burning. It is placed vertically, near the entrance to face the wind, in order to prevent it from blowing into the entrance. The grass plug on the roof of the entrance-room is also utilized for regulating the draught. It is placed at the edge, in a direction opposite that of the wind, which, after striking against the plug, gets into the opening. Of course, all these arrangements are of no avail when strong winds are blowing.

352 The inner arrangement of the underground house is as follows. On the side opposite the door leading to the entrance-room, behind the posts, is a platform, from 30 cm. to 60 cm. high, made of boards (see Figs. 60 and 61). This place (ayo′-ai) serves as a seat and as a bedroom for visitors. It is covered with seal and reindeer skins. Upon it, near the walls, are stored away household articles that are in frequent use. The right and left sides of the house are called yelñı-xal. On the right side lives the master; on the left, his brothers, relatives, and neighbors. The places behind the posts are called yoyo′ñı.[1] They serve for bedrooms, and have a dirt floor like the centre of the house. These places are separated from the middle of the room by means of logs (Fig. 60, *L*). The floor is strewn with willow-branches covered over with dry grass (grass mats are used in northern Kamchatka), and then with seal and reindeer skins. Sleeping-tents are pitched over these skins.

342 These tents are of the same shape as the inner tents of the Reindeer Koryak, but, instead of being made of heavy reindeer-skins, they are made of old skins which have served for bedding before; or they are made of old fur clothing. The hair of the skins is closely clipped with a knife. These tents serve as bedrooms only, and are let down at night. In the daytime the front side of the tent is raised, and fastened on top with thongs. The children are kept on the skins under the raised tents, and the women also [513] sit there with their work (see Plate XXXVI). The men sit, during the day, on logs in front of the tents, unless they are lounging in bed. They sleep in the tents with their heads toward the middle of the house. Bags filled with clothing, scraps of skin, nets, and other household articles, serve as pillows, while the bolster is supplied by the log.

To give better support to the main roof-beams in large houses, three additional posts are driven in between the central posts (Fig. 61, P′), except on the side opposite the door.

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[1] By this name the sleeping-tents or the inner tents of the Reindeer Koryak dwelling are also called.

Near the four main central posts (P') stakes of the height of a man are 342 ●
driven into the ground. On their upper ends, which are fastened with thongs
to the main posts, cross-pieces are put, upon which clothes, shoes, and other 352
household goods are hung. There is no such cross-piece on the side where
the hearth is; but above the hearth, across the entire width of the house,
several stout timbers are placed, their ends being tied with thongs to the
upper cross-beams. These form a grating, upon which clothes, shoes, and
wood are put to dry. To these poles, hooks of wood, iron, or reindeer-antler, are attached, from which pots and kettles are suspended over the
fire (see Fig. 61 and Plate xx).

The corners of the house, the spaces between the sleeping-places, and
the place for visitors, are ordinarily used for storage purposes. Nets, dogs'
harness, hunting-implements, snowshoes, tools, and other things, are hung up
there. A large iron pot for water, dishes, tea-kettles, wooden and leather [415]
pails, and chamber-vessels (see Plate xx) are kept on the side of the door
leading to the entrance-room.

If, as appears to me, the tent of the Reindeer Koryak is built after the 342
type of the dwelling of the Asiatic nomads, but adapted to the needs of the
arctic climate, so the underground house of the Maritime Koryak represents 171
a type of palæ-Asiatic-American dwelling. We do not find such a dwelling among the Turkish-Mongolian tribes. All so-called palæ-Asiatic tribes formerly had, or now have, underground houses similar to the house of the Koryak type. The ancient Kamchadal dwelling as described by Steller[1] differed from the present-day house of the Maritime Koryak only by the absence of the umbrella-shaped storm-roof, by having no entrance-room, and by having notches instead of holes in its ladder.

The Kerek do not build storm-roofs, because of their lack of the required timber.[2] I also found on the Tılqai River[3] one Koryak house without a funnel. It stood in a forest where the winds were not so violent. According to the Koryak belief, the houses of evil spirits (kalau) have no storm-roofs. We may rightly suppose that this peculiar part of the construction, which we find only among the Koryak, is not characteristic of the general type of this dwelling.

The dwelling of the Kamchadal has no entrance-room, for the underground house serves them as a winter dwelling only; but among the Koryak the entrance through the ante-room is also closed up for the winter. In the Kamchadal dwelling, an underground passage leading out from the hearth[4] takes the place of the ante-room of the Koryak. Women, children, and men transformed[5] into women, used to go in and out through this passage. It served as a storehouse; and it had a grass plug, which was taken out while the fire was burning, to secure a draught. In summer the Kamchadal used to live in conical huts placed upon platforms raised on tall posts. As we shall see below, the Koryak also put up such structures on piles for their storehouses.

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[1] Steller, p. 212.

[2] Bogoras, The Chukchee, Vol VII of this series, p. 183.

[3] See p. 437.

[4] See the cut in Steller, p. 212; Krasheninnikoff, II, p. 40.

[5] See Part 1, p. 52.

Sternberg states that the Gilyak adopted the Manchurian type of winter house, which is above ground, only in places near the Amur River.[1] In other places they preserved their semi-subterranean dwelling of the Koryak type. Schrenck gives a detailed description and a cut of that dwelling.[2] The smoke-hole on the roof of the Gilyak house does not serve at present as an entrance, and they have no ladder; but Sternberg surmises that in former times the smoke-hole in the roof also served as an entrance, as with the Kamchadal and Koryak. Even now this opening is used as a door on certain occasions. At the bear festival the Gilyak descend into the house, carrying the skin and flesh of the killed bear, by means of a pole inserted for the purpose through the smoke-hole. At the close of the festival all the ritual accessories, as well as the bones of the bear, are removed from the house through the same smoke-hole.[3] Now the Gilyak enter the house through a narrow passage which slopes down to the door, similar to the Koryak entrance-room. The door faces the side most protected from the prevailing winds. The floor of the house is lower than that of the passage. The hearth is placed in the middle of the house, under the opening in the roof.

The underground house was in common use among the Ainu people as well. We find in Schrenck[4] the description of a modern underground dwelling of the Ainu in the southern part of Saghalin Island. It is entered through a side-door. The roof extends far enough over the entrance to form in front of it a covered landing-place or ante-room, with steps leading inside. The hearth is nearer the door; but in dwellings of smaller size it is also placed in the middle. Large houses possess two hearths at the corners, on the side of the door, with an opening in the roof over each hearth for the exit of the smoke. Not infrequently a channel runs from the hearth itself to the passage, for increasing the draught of the fire. Grimm[5] describes a modern Ainu dwelling on the island of Shikotan. The hearth is in the right-hand corner of the earth hut on the side of the door, while the above-ground summer hut forms a passage to the winter pit-dwelling.

The important questions relating to the remains of ancient subterranean dwellings found on the islands of Yezo and Saghalin will be discussed in Chapter X, in the section on ancient pottery of the Koryak. 342 171

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[1] See Sternberg, The Gilyak (Ethnographical Survey [Moscow, 1904], No. 1, p. 18).

[2] See cut in Schrenck, II, p. 12.

[3] See Sternberg, The Gilyak (Ethnographical Survey [Moscow, 1904], No. 1, p. 6).

[4] Schrenck, II, p. 23.

[5] H. Grimm, Beitrag zur Kenntnis der Koropokguru von Yezo und Bemerkungen über Shikotan Aino (Mitteilungen der deutschen Gesellschaft für Natur und Völkerkunde Ostasiens in Tokio, [1889-92, Band V, pp. 369—373).

I stated before that Koryak underground houses no longer exist in Gishiga Bay; but remains of such ancient dwellings may be seen on the shores and islands of Gishiga Bay and the Okhotsk Sea as far as the village of Yamsk, and possibly still farther south.

A link between these remains and those of former Gilyak-Ainu earth dwellings and their present underground houses seems to be found in the ruins of such dwellings on the banks of the lower course of the Amur River and at its mouth,[1] which may also be ascribed to the ancient Gilyak.

Returning to the Arctic palæ-Asiatics, we find that the ancient Yukaghir had underground houses.[2] We shall discuss these dwellings in greater detail in the work devoted to the Yukaghir.

The Chukchee, even the Maritime branch of the tribe, now make their houses of reindeer-skins;[3] but along the Arctic shore, from Cape Erri (or Shelagski) to Bering Strait,[4] and along the Chukchee shore of Bering Sea, south of East Cape (or Chukotsky),[5] remains of underground dwellings are found. The frames of these houses were mainly of bone of whale, because timber was not available.

Wrangell, having heard from the Chukchee that these dwellings formerly belonged to the Onkilon, assumed that they were left by the Eskimo who had lived on the Asiatic shore of the Arctic, but who subsequently wandered off to America. It has been shown before (p. 407) that Onkilon is a wrongly recorded Chukchee-Koryak word, Añqala'n ("maritime dweller"). Even now the Koryak and the Chukchee apply this name to every maritime inhabitant. This name, however, does not throw any light on the tribal relationship of the dwellers. 342 114

From the resemblance between the remains of subterranean dwellings on the Asiatic shores of the Polar Sea and those found on the islands and the northern shores of America, Markham[6] has formed the theory that the Eskimo emigrated into Greenland from Asia, the groundlessness of which theory has been proved by Professor Boas.[7]

Schrenck[8] has suggested that the remains of underground houses along

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[1] For the pits of ancient dwellings on the Amur River see B. Laufer, Die angeblichen Urvölker von Yezo und Sachalin (Centralblatt für Anthropologie, Ethnologie und Urgeschichte, Jena, Vol. V, pp. 321—330).

[2] See Hedenstrom in the Siberian Messenger, p. 105, and in Fragments about Siberia, p. 97; Wrangell, I, p. 7, II, p. 57; Müller, Sammlung, Russ. Gesch., III, p. 46; Pallas, Neue Nord. Beitr., I, pp. 234, 235.

[3] Bogoras, The Chukchee, Vol. VII, of this series, p. 178.

[4] Wrangell, II, pp. 220, 221; Nordenskiöld, I, pp. 403—406, 456.

[5] Bogoras, The Chukchee, Vol. VII, of this series, p. 180.

[6] R. Markham, On the Origin and Migrations of the Greenland Esquimaux (The Journal of the Royal Geographical Society [London, 1865], Vol. XXXV, p. 87).

[7] See Boas, Ueber die ehemalige Verbreitung der Eskimos im arktisch-amerikanischen Archipel (Zeitschrift der Gesellschaft für Erdkunde zu Berlin, 1883, Vol. XVIII, p. 118).

[8] Schrenck, II, p. 28.

342 114 the shores of the Arctic Ocean were the ancient dwellings of the ancestors of the present Chukchee, in which they lived before they adopted the tent made of skins. On the shore of the Chukchee Peninsula in Bering Sea, Mr. Bogoras[1] saw remains of underground dwellings in the settlements of the Maritime Chukchee, as well as in those of the Asiatic Eskimo.

342 171 According to the description of Mr. Bogoras,[2] this underground dwelling, called by the Chukchee "jaw-bone house" (wa'lkar), had also two entrances; but, contrary to the Koryak underground house, the upper entrance at the upper part of the wall was used in summer, and in winter a long and narrow underground passage which in summer was filled up with water. The level of the floor of the inner room was above that of the underground passage, so that the water could not injure the living-room.

In houses of the Koryak, Kamchadal, Gilyak, and Ainu, on the other hand, the floor of the inner room, as mentioned before, is lower than that of the ante-room or the draught-passage. The underground houses of the Kamchadal were full of water in summer; and this explains, according to Steller and Krasheninnikoff,[3] why they lived in summer in houses built on piles. Like the Eskimo snow-house, the "jaw-bone house" of the Chukchee was heated and lighted by means of an oil-lamp. The opening in the roof, which was covered with the shoulder-blade of a whale, served only to admit light.

Turning to the American side, we see from the descriptions of Russian and other travellers, such as Sarytcheff,[4] Sauer,[5] Langsdorff,[6] and Veniaminov,[7] that an underground house similar to that of the Kamchadal served as the ancient dwelling of the Aleut. The frame was built of driftwood or whale-ribs. The opening in the roof served as smoke-hole, window, and entrance to the house, which was heated by a hearth fire, and the people descended to it by means of a notched log. Outside of the main living-room, or the middle of the house, were other smaller side-rooms with narrow passages leading outside, the latter being very much like the Kamchadal draught-channel.

From the Kadyak Islands along the American shores of Bering Sea and the Polar Ocean, as far as Greenland, we meet with remains of underground dwellings. The type of these dwellings shows some variations.

To judge from the descriptions of former travellers, underground houses of the Aleut type were met among the Eskimo in the southern part of Alaska; with this difference, however, that along with smaller underground dwellings, subterranean public houses (kashim) were found, which were designed for festivals, entertainments, or steam-baths. In some places remains of similar underground houses of the Gilyak type were found.

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[1] Bogoras, The Chukchee, Vol. VII, of this series, p. 180.

[2] Ibid., pp. 181, 182.

[3] Steller, p. 212; Krasheninnikoff, II, p. 40.

[4] Sarytcheff, Travels in the Northeastern Part of Siberia, St. Petersburg (Russian edition), II, pp. 14, 157.

[5] Billing's Reise (Berlin, 1802), p. 294.

[6] Langsdorff, Bemerkungen auf einer Reise um die Welt in den Jahren 1803–07 (Frankfurt a. M.), II, pp. 30, 56.

[7] Veniaminov, Notes on the Islands of the Unalashka District (Russian edition), II, pp. 204–211.

On Bering Strait the Eskimo were found to possess underground houses[1] of the wa'lkar type of the Chukchee Peninsula, described above. On the shores of the Arctic Ocean we find again small earth huts of the Kamchadal type, with entrance through the smoke-hole, but with a frame made of the bones of whales. Farther east we find stones also used as building-material for the walls of the earth hut, with a roof made of bone of whale. The stone walls frequently penetrate but very slightly into the ground, or are erected on the surface of the soil, being fenced up with an earth rampart.[2]

On the shores of the Arctic Ocean the subterranean winter houses have been almost superseded by snow dwellings.

Remains of underground houses, or tales about them, have been found among many Indian tribes of northwestern America, and among some of them underground dwellings are found even now.

One tale of the Bella Coola, a coast tribe of British Columbia which belongs to the Salish stock, points to their former possession of subterranean dwellings.[3] We also find a reference to the underground house, exit from which is made through the smoke-hole, in one myth of another tribe of the Salish stock, the Quinault Indians, who dwell on the coast of Washington.[4]

Among the Ts'ᴇts'ā'ut, an Athapascan coast tribe, the house is made of bark, and, though constructed above ground, it is arranged for the winter to live in as in a Koryak underground house. When snow falls very deep, the door is blocked up, and the exit is effected through the roof.[5]

The custom of building underground or semi-subterranean houses prevailed in former times, or is still observed among the inland tribes of the Salish stock. All such houses were or are still used as dwellings only during the winter.[6] The smoke-hole in the middle of the roof is used as an entrance, through which one descends into the house by a notched log. As with the Koryak and Kamchadal, the hearth is on the floor at the bottom of the ladder. The roof is constructed of poles or timber. Most of these dwellings are circular in shape, though some are square.[7] The pit is dug out from four to five metres in diameter, and a metre and a half deep. The roof is covered with grass, and the whole is covered up with earth, so that from a distance the underground house looks like a mound. These underground dwell-

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[1] See Murdoch, p. 72; Nelson, p. 242.

[2] See Boas, Bella Coola Indians, p. 79.

[3] See Boas, The Central Eskimo, p. 539; Turner, p. 228.

[4] See Farrand, Quinault Indians, p. 94.

[5] See Tenth Report on the North-Western Tribes of Canada (Report of the British Association for the Advancement of Science, 1895, p. 561).

[6] See Sixth Report on the North-Western Tribes of Canada (Report of the British Association for the Advancement of Science, 1890, pp. 633, 635).

[7] Teit, The Lillooet Indians (Vol. II of this series, p. 212).

342 171 ings have no side-entrance, entrance-room, underground passage, or draught-channel, like the underground houses of the palæ-Asiatics, Aleut, and Eskimo.

Until quite recently underground winter dwellings were found among the Shuswap,[1] the Thompson River Indians,[2] the Lillooet,[3] on the lower course of the Fraser River.[4] Remains of ancient underground houses have been found among the Chilcotin,[5] in the Thompson River region,[6] at Nicola Lake (Athapascan), and in other places in the interior of British Columbia.

Farther to the south we find underground houses of the Salish type among the Indians on the Klamath Lakes, Oregon, and in northern California among the Hupa[7] and Maidu.[8] It is interesting to note that the Indian coast tribes, like the Tlingit, Tsimshian, Haida, whose myths bear the greatest resemblance to those of the inhabitants of the underground houses on the Asiatic side of the Pacific, now live in large wooden houses. The house, however, has a smoke-hole similar to that of the underground house; and in olden times the centre of the house was excavated.[9]

From this short review of different types of underground or semi-subterranean dwellings on both sides of the North Pacific, we may draw the conclusion that the underground houses of the palæ-Asiatic tribes bear more similarity to those of the Aleut and Alaskan Eskimo than to the underground dwellings of the Northwestern Indians.

It is difficult to admit the theory of independent invention for the construction of the underground house over this whole area. It seems to me that imitation played its part here, while the climatic conditions contributed to the spread of underground dwellings.

342 The Koryak underground house serves for a winter as well as for a summer dwelling. As I said above, there are settlements in which people live only during winter, and others which are inhabited only in summer. The houses of the summer and winter settlements are built alike. The use of a dwelling for summer or for winter depends upon its being near the seashore or up the river. The houses occupied only during summer are called ale′-yan ("summer house"), and winter dwellings are called la′xlañ-yan ("winter house").

343 The Maritime Koryak build their storehouses on platforms raised on poles from four to six metres above the ground, so that dogs, bears, or other beasts shall not steal their provisions. To build a storehouse (Plate XXI,

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[1] See Sixth Report on the North-Western Tribes of Canada, etc., p. 635.

[2] Teit, Vol. I of this series, p. 193 and Figs. 135, 136.

[3] Teit, The Lillooet Indians, p. 212.

[4] Sixth Report on the North-Western Tribes of Canada, p. 633.

[5] Twelfth Report on the North-Western Tribes of Canada, p. 646.

[6] Smith, Vol. I of this series, pp. 140, 414.

[7] See description by Schurz, Urgeschichte der Kultur, 1900, pp 422 - 423.

[8] Dixon, The Northern Maidu (Bulletin American Museum of Natural History, Vol. XVII, pp. 168 et seq.)

[9] Boas, Tribes of the North Pacific Coast (Annual Archæological Report, 1905, Toronto, p. 236).

1: Jochelson E-5 (1900-01) 1908 RY4 Koryak RY4

Jesup North Pacific Expedition, Vol. VI. Plate XXII.

361

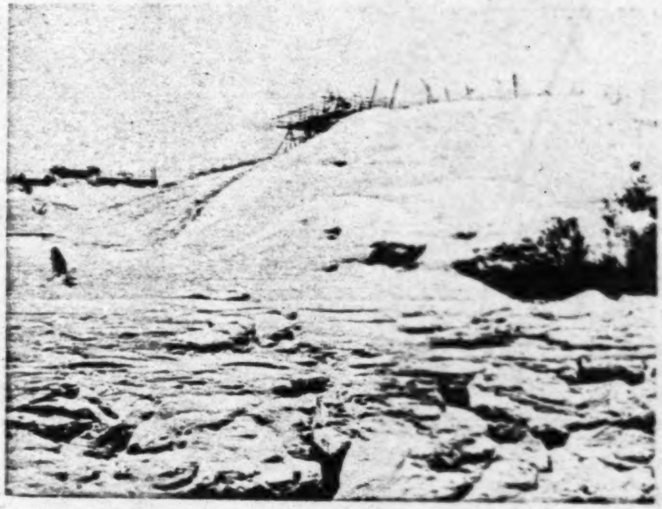

Fig. 1. Kamenskoye seen from the Sea.

312

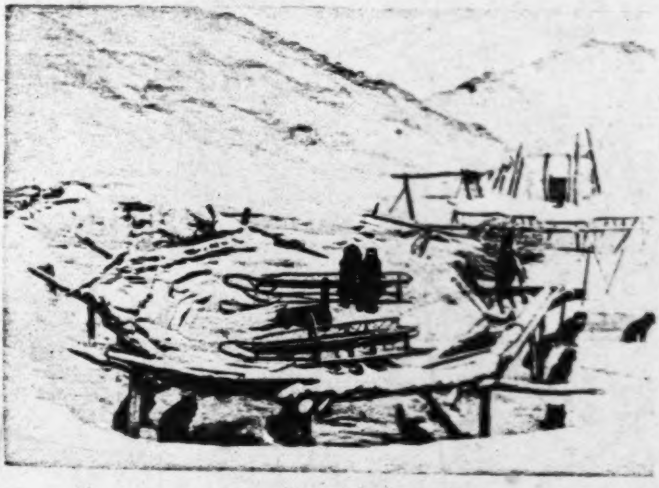

Fig. 2. View of Storm-Roof.

The Koryak.

[Facing p. 467: B]

361 In the above enumeration of settlements it is indicated which are occupied only in winter, and which only in summer. With few exceptions, the settlements of Maritime Koryak are situated near the mouth of a river or brook, in order to have a supply of fresh water. The majority of the settlements are situated on the rocky coasts of the seashore.

Plate XXII, Fig. 1, represents the steep rocks at the mouth of Penshina River, behind which the Kamenskoye settlement is concealed; while Plate XXIII, Fig. 1, represents part of Big Itkana.

● 342 177 The Maritime Koryak of the Nayakhan settlement and the Russianized Koryak of the Okhotsk district have completely abandoned their underground dwellings, and live in log-cabins like those of the Russians. The flat roof of these houses is made of logs covered with earth, which lets in the summer rain. Inside is a fireplace or a chimney like that of the Yakut, made of beaten clay.

342 The Koryak of northern Kamchatka who have embraced the Christian faith have abandoned their former dwellings under the pressure of the Russian Administration. Some of them live in log-cabins like those described above, and others live in houses of the Yakut type, which have been introduced into Kamchatka by the Russians. This structure consists of a flat roof with four slanting walls, and reminds one of a truncated pyramid. The walls are coated with clay to keep in the heat. Instead of the Yakut fireplace in the right-hand corner of the house, with a chimney for the escape of smoke, we find a hearth in the middle of the house and a smoke-hole in the roof.

Owing to the lack of timber, the Kerek build their semi-underground houses without the storm-roof. Since the smoke-hole does not serve as a means of exit, they have no ladder with holes. The frame of the house, placed in a pit, consists of crooked stakes covered with earth. The inside is covered all around with pieces of skin. In winter, to secure more heat, the dwellings are covered with a thick layer of snow. The entrance to the house, in summer as well as in winter, leads through a long, narrow hall. The inner arrangement of the house is similar to that of other Koryak underground dwellings.[1]

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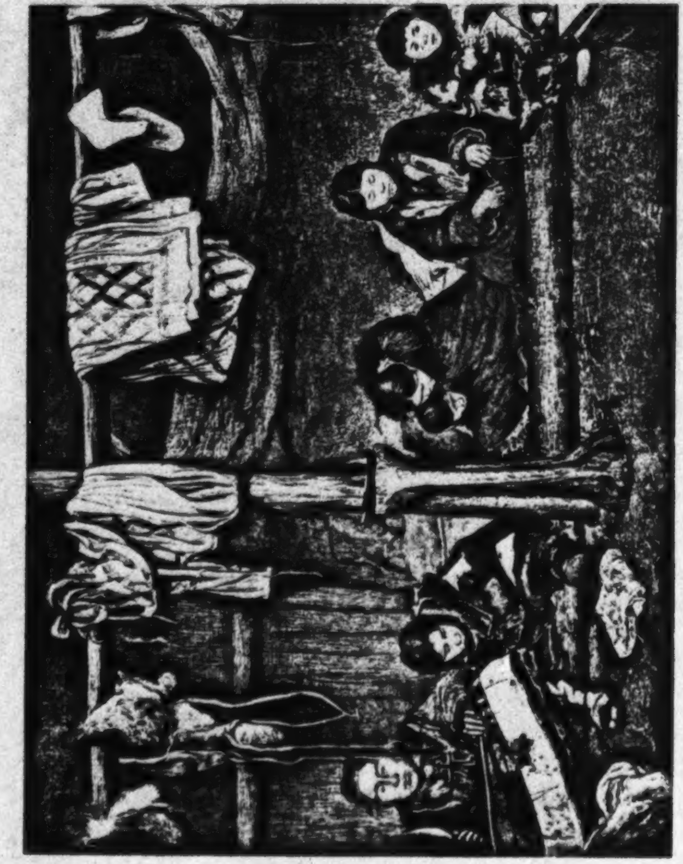
[1] Bogoras, The Chukchee (Vol. VII of this series, p. 183).

Jesup North Pacific Expedition, Vol. VI. Plate XXXVII.



Interior of House.

The Koryak.

[Facing p. 628]

285 the first braid is sewed. The braid then continues spirally around this strip of skin, the spirals being sewed together. These bags are ornamented by inserting at a certain place a dark or ornamented braid, which occupies one turn of the spiral, to be followed by a plain turn, which again may be followed by a decorated turn. Thus it happens that at one place in the basket the ornamented and unornamented strips are sewed together, and the irregular appearance is presented because the ornamented turn of the spiral always ends one row above the point where it begins. This technique is shown in Fig. 164, *b*. In this case the lower part of the basket is made of coarse braid, while the upper two-thirds are made of a much more closely woven braid. In Fig. 164, *c*, the insertion of the decorative band is made in a different way, a single black spiral being inserted, which tapers at both ends. The technique of this style of basketry is shown in Fig. 164, *a*.

285 281 The Maritime Koryak are about the only part of the tribe engaged in basket-weaving from plant and other fibre. The Reindeer Koryak women have no time, and their large cold tents are unsuited in winter for carrying on the work of preparing the material and weaving the baskets. The Reindeer Koryak women content themselves with sewing-bags made of skins and with the woven baskets obtained by exchange from the women of the Maritime tribe.

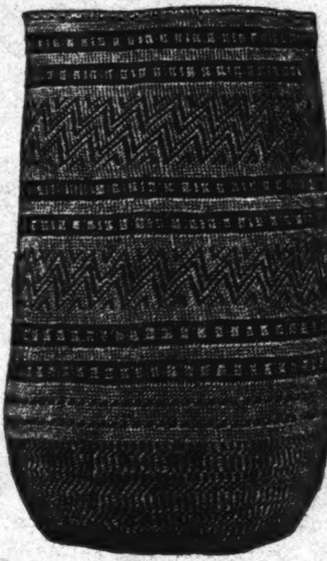


Fig. 163 ($\frac{70}{885}$). Water-tight Basket. Northern Kamchatka. Height, 34 cm.

[437]

172 Ancient Pottery. — I have referred several times to the excavations of ancient Koryak underground dwellings, which I made at the mouth of the river Nayakhan and on the seacoast between the mouths of the rivers Nayakhan and Gishiga. Before undertaking to describe the potsherds found in these excavations, I will make a few general remarks on the remains of these underground dwellings and how the excavations were conducted.

342 172 The Koryak themselves consider these remains as the dwellings of their ancestors, who had lived there previous to the advent of the Russians, and they call them by the same name as they call their present underground dwellings (see pp. 448, 453). These dwellings are therefore the dwellings of the Koryak, and not those of another tribe, and they are not very ancient.

Seen from the outside, these remains form circular or nearly circular

342 172 shallow pits with small embankments, and resemble the remains of underground dwellings on Yezo, as described by Dr. Grimm.[1] Grimm calls attention to the charred posts found in his excavations. In some pits I also found that the posts which evidently supported the roof were completely charred. The Koryak explained this by stating that the Russian conquerors or other foes had set fire to these dwellings, — a practice quite frequent in antiquity when those besieged in the underground house would not surrender.

[285]

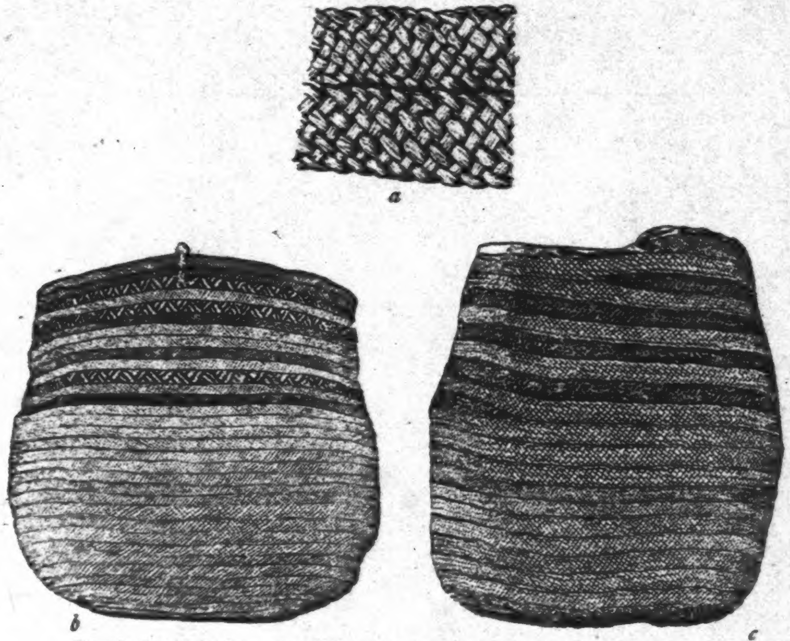


Fig. 164, Braided Baskets. *a* Detail showing technique of basket; *b* ([illegible]), *c* ([illegible]) Baskets. Height, 40 cm., 44 cm.

172 Much to my regret, I was unable to carry on systematic excavations. The method of my travels precluded a long stay in those regions. Besides, it was in the month of July, when the soil was still frozen to the depth of one foot; so that digging was impossible, and the ground had to be broken with an axe. Therefore no amount of precaution could prevent the breaking of the articles found. Being unable to make regular and extensive excavations, I confined myself to digging up the centres of the holes in the hope of

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[1] Grimm, Beitrag zur Kenntniss der Koropokguru auf Yezo u. Bemerkungen über die Shikotan-Aino (Mitteilungen der deutschen Gesellschaft für Natur- und Völkerkunde Ostasiens in Tokio, 1892, Band V, pp. 369-373).

11: Kennan--171-172 T-3 (1865) 1870 Koryak
116, 342 Reindeer

"Leaving our Cossack Meroneff, seconded by the Major, to explain our business and wants, Dodd and I strolled away to make a critical inspection of the encampment. It consisted of [172] four large conical tents, built apparently of a framework of poles and covered with loose reindeer skins, confined in their places by long thongs of seal or walrus hide, which were stretched tightly over them from the apex of the cone to the ground. They seemed at first sight to be illy calculated to withstand the storms which in winter sweep down across this steppe from the Arctic Ocean; but subsequent experience proved that the severest gales cannot tear them from their fastenings. Neatly constructed sledges of various shapes and sizes were scattered here and there upon the snow, and two or three hundred pack-saddles for the reindeer were piled up in a symmetrical wall near the largest tent. Finishing our examination, and feeling somewhat bored by the society of fifteen or twenty Koraks who had constituted themselves a sort of supervisory committee to watch our motions, we returned to the spot where the representatives of civilization and barbarism were conducting their negotiations. They had apparently come to an amicable understanding; for, upon our approach, a tall native with shaven head stepped out from the throng, and leading the way to the largest tent, lifted a curtain of skin and revealed a dark hole about two feet and a half in diameter, which he motioned to us to enter."

11: Kennan--175-176 T-3 (1865) 1870 Koryak-1-2
116, 165, 342, 354, 511 Reindeer

"The temperature of a Korak tent in winter seldom ranges above 20° or 25° Fahr., and as constant exposure to such a degree of cold would be at least very disagreeable, the Koraks construct around the inner circumference of the tent small, nearly air-tight apartments called 'pologs,' which are separated one from another by skin curtains, and combine the advantages of exclusiveness with the desirable luxury of greater warmth. These 'pologs' are about four feet in height, and six or eight feet in width and length. They are made of the heaviest furs sewn carefully together to exclude the air, and are warmed and lighted by a burning fragment of moss floating in a wooden bowl of seal oil. The law of compensation, however, which pervades all Nature, makes itself felt even in the pologs of a Korak yourt, and for the greater degree of warmth is exacted the penalty of a closer, smokier atmosphere. The flaming wick of the lamp, which floats like a [176] tiny burning ship in a miniature lake of rancid grease, absorbs the vital air of the polog, and returns it in the shape of carbonic acid gas, oily smoke, and sickening odors. In defiance, however, of all the known laws of hygiene, this vitiated atmosphere seems to be healthy; or, to state the case negatively, there is no evidence to prove its unhealthiness. The Korak women, who spend almost the whole of their time in these pologs, live generally to an advanced age, and except a noticeable tendency to angular outlines and skinniness, there is nothing to distinguish them physically from the old women of other countries. It was not without what I supposed to be a well-founded apprehension of

11: Kennan--175-176 T-3 (1865) 1870 Koryak-2
116, 165, 342, 354, 511 Reindeer

suffocation, that I slept for the first time in a Korak yourt; but my uneasiness proved to be entirely groundless, and gradually wore away."

11: Kennan--222 T-3 (1865) 1870 Koryak
116, 342 Maritime

"The settlement [RCH: i.e., the village of Kamenoi] resembled as much as anything a collection of Titanic wooden hour-glasses, which had been half shaken down and reduced to a state of rickety dilapidation by an earthquake. The houses--if houses they could be called--were about twenty feet in height, rudely constructed of drift wood which had been thrown up by the sea, and could be compared in shape to nothing but hour-glasses. They had no doors or windows of any kind, and could only be entered by climbing up a pole on the outside, and sliding down another pole through the chimney--a mode of entrance whose practicability depended entirely upon the activity and intensity of the fire which burned underneath. The smoke and sparks, although sufficiently disagreeable, were trifles of comparative insignificance."

11: Kennan--224 T-3 (1865) 1870 Koryak
116, 342, 354 Maritime

"The interior of a Korak yourt--that is, of one of the wooden yourts of the settled Koraks--presents a strange and not very inviting appearance to one who has never become accustomed by long habit to its dirt, smoke, and frigid atmosphere. It receives its only light, and that of a cheerless, gloomy character, through the round hole, about twenty feet above the floor, which serves as window, door, and chimney, and which is reached by a round log with holes in it, that stands perpendicularly in the centre. The beams, rafters, and logs which compose the yourt are all of a glossy blackness, from the smoke in which they are constantly enveloped. A wooden platform, raised about a foot from the earth, extends out from the walls on three sides to a width of six feet, leaving an open spot eight or ten feet in diameter in the centre for the fire and a huge copper kettle of melting snow. On the platform are pitched three or four square skin pologs, which serve as sleeping apartments for the inmates and as refuges from the smoke, which sometimes becomes almost unendurable."

11: Kennan--262 T-3 (1865) 1870 Koryak
116, 342, 352, 511, 857 Maritime

"It is a mystery to me how human beings with any feeling at all can be satisfied to live in such abominable, detestable houses as those of the settled Koraks. They have not one solitary redeeming feature. They are entered through the chimney, lighted by the chimney, and ventilated by the chimney; the sunshine falls into them only once a year--in June; they are cold in winter, close and uncomfortable in summer, and smoky all the time. They are pervaded by a smell of randic oil and decaying fish; their logs are black as jet and greasy with smoke, and their earthen floors are an indescribable mixture of reindeer's hairs and filth dried and trodden hard. They have no furniture except wooden bowls of seal oil, in which burn fragments of moss, and black wooden troughs which are alternately used as dishes and as seats. Sad is the lot of children born in such a place. Until they are old enough to climb up the chimney-pole they never see the outside world."

175 648 The first information about the Koryaks was received in Russia from the Cossacks Semen Dezhnev and Mikhail Stadukhin. The Russian moves from the Anadyr' Fort to Kamchatka began with the campaigns of Morozko (1690) and Atlasov (1697-1698). Arbitrary exaction of the fur-tax and, especially, abuses on the part of representatives of the tsar's government encountered Koryak resistance, in the form of armed attack on the units of tax-collectors.

During the latter half of the 18th century, the change in the Russian tax policy (decreased levies and establishment of a fixed tax) resulted in a cessation of the armed attacks on Russian units. The tsarist government also tried to make use of the wealthy upper stratum of Koryak society for its own benefit. Under the new regulations, the tax was submitted by the wealthy Koryaks, who were granted the right to collect it from the population. Supporting and strengthening the exploiting upper group in this manner, the tsarist government also admitted some of its representatives to administrative positions. Thus, the rich baptized toyon of the village of Kamenskoye, Semen Um'yavin, was even a member of the lower District Court during the reign of Catherine II.

In organizing the taxation, the local Russian administration formed administrative units ("clans"), which consisted of neighboring villages of coastal Koryaks and specified territorial groups of reindeer Koryaks. While helping to consolidate the power of the rich Koryaks heading these "clans," the tsarist government also left the Koryaks at the mercy of the commercial exploitation of Russian merchants.

[433] 429 175 On the whole, the Koryaks lived in a state of subsistence economy in the latter 18th and in the 19th centuries. But side by side with barter between the reindeer-breeding and the coastal Koryaks, there was also a gradual development of trade with Russians. In the 19th century, the Koryaks could not longer manage without imported Russian goods: kettles, iron articles, tobacco, tea, etc. At the end of the 19th and the beginning of the 20th century, American goods also began to penetrate into Koryak territory. At that time, American traders had their own storehouses on the territory, as well as their own agents, and so on. Trade was usually attended by getting the natives drunk and swindling them, and brought enormous profits to the merchants and buyers.

175 177 During the latter half of the 18th century, closer ties developed between the Koryaks and the Russians. At this time, Russian villages sprang up on Koryak territory, including Penzhino, Gizhiga, etc. From the Russians, the Koryaks obtained iron hunting and fishing implements, readymade twine for their nets, more efficient instruments for working wood and bone, and so on. ● [342] Under the influence of Russian culture, some of the sedentary Koryaks began to live in frame houses. Russian manufactured goods came into daily use, including metal utensils, food products, and, to a lesser degree, textile goods. [184] [551] The strongest cultural influence of the Russians was among the southern Koryaks. Russian names and surnames became predominant among them.

184 Economy

433 In the past, the economic activities of the Koryaks consisted of reindeer-breeding, sea-animal hunting, fishing and hunting. The territorial groups listed earlier differed in their economic life. The Chavchuvens were typical reindeer-breeders. They knew nothing of sea hunting, and fur-animal hunting was to them only an auxiliary occupation; fishing was also unimportant. The economy of the Alyutortsy was unusual in that it combined fishing and

226 [476] with large nets sewn together from the smaller ones they owned individually.

Other methods of fishing included fishing with the aid of an iron hook (marik) and "dipper" nets. The fisherman stood up to his knees in water, holding in his hands an implement that looked like a large sack-net on a long pole. Sighting a fish, he quickly directed the net towards it, scooping it up and throwing it out on the gravel shore. This method was used in the beginning of the fish-run, before the cooperative set to work.

262 251 [462] Most of the catch went into the making of yukola. The fish were disemboweled and hung to dry on special racks. The yukola (fish dried in the sun and the wind) was put away in storehouses—tents on high piles, covered with dry grass. Yukola was usually made by women, while fishing was done chiefly by men. The yukola was the principal food of the people all year; it was also used as feed for the dogs, in addition to "pickled fish"—freshly caught fish piled into a pit, covered with earth, and left to ferment until needed.

224 184 [462] An important auxiliary occupation among both sedentary and nomad Koryaks was hunting, which was done solely by men. The fur animals hunted were fox, wolverine, otter, hare and ermine.

[883] Fur-animal hunting was most important among the Palantsy, who lived in a region abounding in Kamchatka sable. These were trapped in nets. Other animals were hunted with guns. Foxes and smaller animals—yevrazhka hamster and ermine—were caught in springtraps. The latter two were usually hunted by adolescent boys. Hares and partridges were caught with a noose. In early spring, many hunters took meat animals—bears, Siberian marmot, wild reindeer and mountain sheep. Tundra animals were usually hunted without the aid of hunting dogs, which were owned by relatively few hunters.

222 [462] An important role in Koryak economy was taken by the gathering of wild plants. The gathering of edible roots, grasses and berries was women's work. Roots were obtained chiefly from mouse-nests. Searching out a mouse-nest, the woman dug it up with a special wooden hoe and took from it the store of edible roots prepared by the mice. The berries gathered were blueberry, cloudberry and crowberry.

285 184 Grass was used to make inner lining for boots, and was also woven into mats, baskets, bags and purses. The weaving of variously shaped baskets, from those in the shape of bowls and trays down to small oval boxes with lids, and also bags of various shapes and sizes was especially developed among the Karagin and Alyutor women.

321 The men widely engaged in carving bone and the horns of wild sheep.

326 One of the villages of the northern coastal Koryaks—the village of Paren' on Taygonos Peninsula, was long known for blacksmithery. The Paren' blacksmiths reforged accidentally gotten pieces of iron into knives famed throughout the Koryak territory and beyond it. Even in the early years of the current century, the local Koryak population preferred them to imported Russian and American knives.

Housing

342 281 The dwelling of the reindeer-breeding Koryaks (yaranga) was a tent, similar to the Chukchi yaranga (called yayan'a in the Chavchuven dialect, and raran'a in the Alyutor dialect). Cylindrical at the base and conical at the top, it had a framework of poles and was covered with reindeer skins, with the fur outside. The pelts to be used for covering the yaranga were scraped a little; some of the flesh side was peeled off, then it was kneaded and smoked to make it waterproof. For summer dwellings, the hair was removed, or else worn, old coverings were used.

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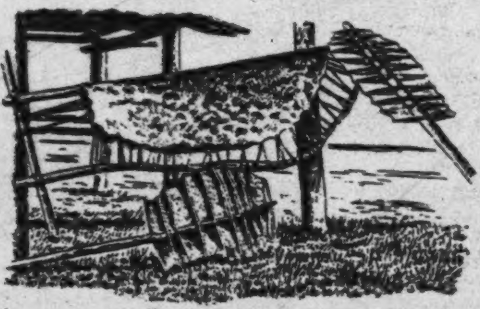

Drying skins.

342 removed, or else worn, old coverings were used. The main skeleton of the yaranga consisted of three thick poles, 3-4 meters long and inserted so as to form a large tripod. In a circle around them were set shorter vertical poles (1.5 to 2 m long) at a distance of one or two meters. These were connected at the top with horizontal beams, from which more poles ran to the top of the tripod. This frame was then covered with pelts. Light penetrated [391] into the dwelling through the smoke-opening above and through the entrance, when the skin serving as a door was thrown back.

Inside the yaranga, 3-4 canopies were attached to the horizontal beams. These canopies, made of reindeer skins, were occupied by separate families. [354] A canopy formed an enclosure of skins and was lighted by a lamp fueled with reindeer or seal fat. Inside the canopy, it was very warm, and during the day the front part was usually raised and left open.

[184] Among the Koryaks who nomadized in southern Kamchatka, yarangas usually had from 3 to 6 canopies, which were high enough to stand in without touching the ceiling. The canopies were very often cleaned and beaten out. Yarangas were built by women, and their size depended on the wealth of the inhabitants.

Most of the coastal Koryaks lived in semidugouts. The base of such a dwelling consisted of a large pit, 1-1.5 meters deep. The walls of the pit were reinforced with a paling of vertical logs, which formed an octagon. Each corner of the octagon was joined on the top, by means of a beam, with the tops of four main posts set in the center of the pit. On these beams were laid flat planks, forming the roof. The frame was covered with sod. At one side of the semidugout was a corridor, 2-3 meters long, with small doors at either end; this served as the summer entrance (or, to be more precise, [354] the spring and autumn entrance). Overhead, in the center of the roof, was a square opening (0.5 × 0.5 m), which was at the same time a smoke vent, a [417] window, and a winter entrance. Instead of a ladder, the Koryaks used a thick log, grooved to form steps. Outside on the roof, around the entrance (smoke vent), they built a funnel of poles (on the coast of Penzhina Bay), or of woven twigs (on the eastern coast), to protect the entrance from snow-
35 drifts. The funnel was supported by props. Inside the dwelling, low benches were built along three of the walls. These were covered with skins, and over them were hung sleeping canopies. A hearth was constructed at the wall on which the corridor opened. In winter, the corridor served as a storage room and a ventilator flue: there was a vent in its ceiling, and this was opened
342 when a fire was going in the hearth. A semidugout usually housed several
592 (2, 3 or more) related families (much like the reindeer-breeders' yaranga). Some of them held as many as 30-40 inhabitants. When spring came, the
[177] Koryaks moved to tall huts, set on stilts. Later they began to use fabric tents.

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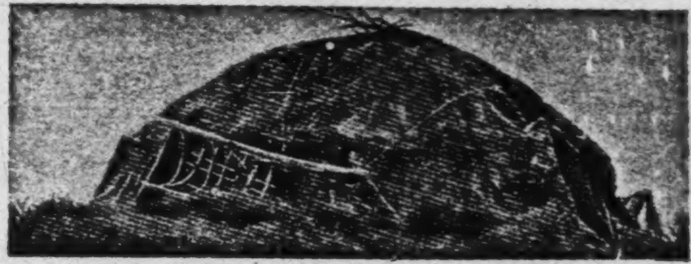

Reindeer-breeders' dwelling.

361 [172] fishing, or at river deltas. Kerek villages were small, consisting of only one or two dwellings. In the past, however, as seen from the ruins, they consisted of 10 to 15 dwellings.

172 342 Russian influence led to the appearance in the villages of the sedentary Koryaks of wooden frame houses as long ago as the middle of the last century.

Means of Transportation

492 493 [184] [171] The nomad Koryaks traveled by reindeer, the sedentary ones by dog-transport. The reindeer were harnessed to the sled; the Koryaks did not know of riding on reindeer. The reindeer sleds were similar to the Chukchi sled in construction. The light ones were arch-staved, with bent runners and a frame for sitting. The freight sleds were built in the same fashion, but more massively. Depending on the purpose of the freight-hauling sled, it was either surmounted by a hood (as in the sleds used for transporting children), or simply by a platform on poles (for carrying loads). There was also a special sled for carrying the frame of the dwelling, and so forth.

The light traveling sleds were usually harnessed to two reindeer; the freight-hauling sled was pulled by one reindeer. The reindeer were harnessed, not in front of the traveling sled, but on the left, so that the driver sitting in the sled could see everything ahead of him. When going downhill,

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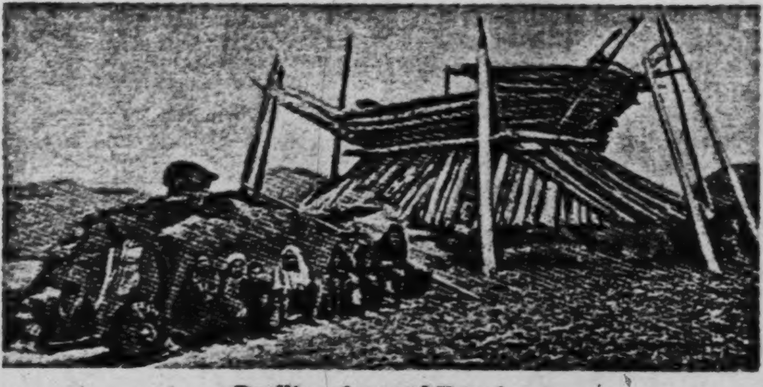
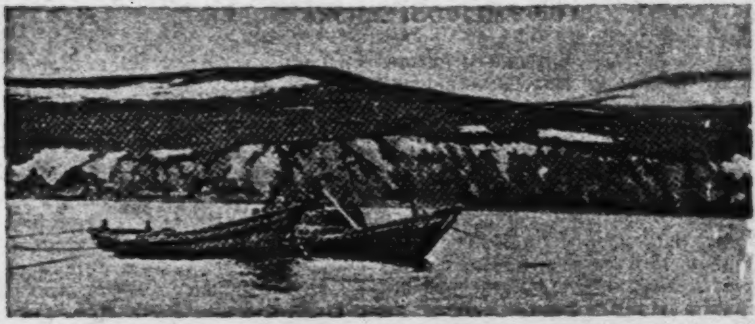


Dwelling of coastal Koryaks.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Catching salmon with stationary seines. Molotov collective, 177
Olyutorskiy Rayon, Kamchatskaya Oblast. 648

cattle. The most favorable conditions for the development of vegetable- 241
gardening exist in the Tigil'skiy Rayon. Today, some of the collectives of 231
this rayon not only produce enough vegetables to meet their own needs, but
also grow them for sale.

The income of the collectives from auxiliary enterprises, and principally 434
from fur-hunting, is also rising. 474

At present, there are several millionaire collectives in the Koryak National 648
Okrug. On the leading collective of the Tigil'skiy Rayon, the Kirov
collective, the capital fund reached the figure of 2,000,000 rubles in 1951.
This collective was organized in 1941 on the basis of an association for
the common pasturing of reindeer. The funds of other collectives are also
rising. In 1951, the capital funds of the "Path of the North" and the "Beacon
of the North" collectives of Penzhinskiy Rayon reached 1,500,000 rubles. 177

Simultaneously with the growth and consolidation of the collective 648
farms, there is improvement in the life of the Koryak collective-farm
members. The collective villages have become larger and more comfortable. 474
The old semidugout has almost disappeared. Today the collective-farm
members live in houses of the Russian type—spacious wooden houses with 361
glass windows. Many new villages have sprung up in the tundra as a result of [342?]
the transition to sedentary life and the enlargement of collective farms.
These include Sedanka Kochevaya (Tigil'skiy Rayon), Krestovoye (Penzhinskiy Rayon), the I. V. Stalin collective-farm village (Penzhinskiy Rayon), and others. In the Karaginskiy Rayon, at a spot where there was only one dugout in 1934, there is today a new rayon center—the large village of Ossora.

The modern Koryak village usually consists of several dozen dwellings
and farm buildings, as well as buildings housing cultural and other institutions.
Among the collective-farm buildings we must note the stables, which
are an innovation among the Koryaks. In all the villages there are bathhouses,
bakeries and stores. A great deal of attention is paid to the construction
of cultural institutions. In every village there is a school (often [368]
with a dormitory), a club or a reading room with a library, a medical or a [365]
medical-assistant station, and a nursery. Many villages have been supplied
with electricity and radio. [207]

The former dispersion of individual areas of Koryak habitation is
steadily being overcome. The means of local communication are being
improved. Motorized transport (cutters, etc.) is widely used in [illegible]

22:Barrett-Hamilton and Jones--285 N-2 (1897) 1898 Koryak
116, 161, 342, 361, 439

"The little village of Karaga consists of seventeen straggling balagans, (1) six yurts,

1. A balagan is a wooden hut raised on piles to a height of about 10 feet from the ground.

(2) or mud huts, and one small tent, plainly labelled with the name and address of a firm

2. A yurt is a wooden hut covered over with sods and grass.

of San Francisco merchants, the tent having been apparently constructed of flour-bags sewn together. The total number of inhabitants can hardly exceed thirty, even supposing that each yurt may be regarded as the residence of a separate family of five individuals such as is shown in our photograph, p. 287."

Koryak

22:Barrett-Hamilton and Jones--285-286 N-2 (1897) 1898
116, 171, 342, 361

"The yurts, [at Karaga--Analyst] therefore, have the proportion of one to about three balagans, and not, as described by James King in the case of the Kamchadales of Petropavlowsk, of one to about six. This authority, the author of 'Cook's Third Voyage' (1784), states that, at Petropavlowsk, when he visited that town in 1779, there were nineteen balagans, three yurts, and [286] seven log-houses, the latter being an introduction made by the Russians. According to King, each family possessed a balagan for use as a summer habitation, but the yurts were used in winter by as many as six families in common. Our experience was slightly different, since we found both yurts and balagans in use at the time of our visit. This is also contrary to the present custom at Petropavlowsk, where the balagans are now only used as storehouses, and while the richer people of that town live in log-houses, the poorer have to be content with yurts."

22:Barrett-Hamilton and Jones--286 N-2 (1897) 1898 Koryak
116, 342, 354

"The yurts and balagans at Karaga seemed to have been very carefully built. The door and doorway of the former were of wood, and the interior carefully constructed of roughly hewn logs, over which a thick wall of sods had been laid. There were generally two compartments, one a small sort of hall or ante-room, having a floor of hardened mud, and through which one passed in order to reach the inner part of the yurt, which formed the second and largest compartment. In the centre of the outer compartment a rough fire-place of stones was sometimes built."

22:Barrett-Hamilton and Jones--286 [2] N-2 (1897) 1898 Koryak

116, 342, 352, 515

"The roof of one yurt into which we entered was supported by four posts, forming a rectangular space between them in its centre. This was the main compartment, and was separated by a wall of wood, with a door in it from the hall. (1) Those parts of the main compartment which lay outside the rectangular space between the four pillars were raised to a height of a few inches from the ground, and the whole floor was strewn with clean grass or rushes, which might serve as a carpet by day and as bedding by night, and gave us an idea of being far cleaner than the yurts of Bering or Copper islands, notwithstanding that the latter contain evidences of modern civilization in the shape of beds, crockery, and iron stoves. Nevertheless, the odour of the Karaga natives, and the readiness with which they spat on the floor, warned us that their supposed cleanliness was probably more apparent than real."

1. As a rule, the only division between the two compartments was a wooden partition about 3 inches high, the whole flooring of the inner room being raised to that height.

22:Barrett-Hamilton and Jones--286 [4] N-2 (1897) 1898 Koryak

116, 342

"These yurts are so solidly built that it is perfectly safe to stand on the top of them; in fact, the roof is commonly used as a receptacle for things which the natives do not wish to leave on the ground. It is also a favourite resting-place for the dogs."

22:Barrett-Hamilton and Jones--287 N-2 (1897) 1898 Koryak
116, 251, 342, 417

"Quite a different sort of edifice is the balagan, a thatched pyramidal hut raised to a height of 10 or 12 feet from the ground on posts and entered by a rough ladder (1) formed

of a tree-trunk placed loosely leaning against one side of the floor, and having big notches roughly hewn in it to form steps. In the centre of one side of the room thus formed was a rough and doorless entrance, covered with a skin; and below the flooring hung the dried salmon which form the winter supplies of the natives—thus safely placed out of reach of the hungry sledge-dogs."

1. Such ladders were found on the Kamchatka river, on the mainland, by Guillemard (see figure on p. 80 of Edition II. of the 'Cruise of the *Marchesa*'), as well as in such a widely different locality as Andai, in the north of New Guinea (*op. cit.*, figure on p. 391). In the latter case they cannot have been intended to prevent the access of animals, since the native dogs are stated to be able to ascend by them. I believe I also saw the same ladders leading to balagans on the island of Hoven Saki, in the Southern Japanese archipelago, but could not be quite sure through my glasses.

22:Barrett-Hamilton and Jones--287-288 N-2 (1897) 1898 Koryak -1-2
116, 171, 178, 342

"On the whole the balagans seemed to agree very closely with those described and figured by King and other earlier travellers. In the pictures given by Steller, however, the balagans have a rounded, not angular, exterior, and the ladders are not of the primitive type, but quite modern in appearance. The balagans also as seen by us differed from those described by King, in being provided with only one and not with two entrances. The shape of the balagans at Karaga is also worth noting, they being pyramidal, whereas those of Petropavlowsk as well [288] as the raised storehouses of the Ainus of Yezo, (1) are

1. See the Rev. John Batchelor's 'The Ainu of Japan,' chap. iv.

gabled like an ordinary hut raised on poles. But in the latter case the influx of Russian civilization would seem to have degraded the balagan from summer dwelling to winter storehouse.

The Karaga yurts differed from those described in the old voyages in being entered from the side only by means of an ordinary doorway, and not from the top by means of a ladder (2). In this respect they bear a very great resemblance to photographs which we

2. See description of yurt, as seen on Karaginski island (p. 296).

22:Barrett-Hamilton and Jones--287-288 N-2 (1897) 1898 Koryak-2
116, 171, 178, 342

possess of the yurts at present in use among the inhabitants of Unalashka, the Commander, and the Kuril islands. The latter seem to have replaced, and to be a modern improvement of the yurt with the entrance in the roof, as in Cook's Voyage there is an excellent figure of one of the latter kind at Unalashka."

22:Barrett-Hamilton and Jones--290 [4] N-2 (1897) 1898 Koryak
116 101 144 171 342

"Altogether, the people of this village [Karaga--Analyst] were rather puzzling, and seem to present some of the characteristics in a mixed degree of Chukchis, Koriaks, and Kamchadales, the three little-known Mongolian races which alone are said to inhabit these regions. Their dwellings, however, were sufficiently Kamchadale in character to stamp them as members of that race. Indeed, it seems to be mainly by their habitations and in their language that these tribes are distinguishable inter se, their features and clothing being, to judge of the various accounts which have been given of them, not very distinct. Steller tells us that the Kamchadales are, in general, an undersized people, but some of these natives were tall and of very fair proportions. This, and the fact that some of the men were bearded, may show a mixture of blood in their veins, possibly traceable to the presence of the Russians for over a century in Kamchatka."

22:Barrett-Hamilton and Jones--295-296 N-2 (1897) 1898 Koryak
116, 101, 142, 342, 562

"Their features [those of the natives of Karaginski Island--Analyst] seem to resemble very closely those of the Chukchis of Indian Point, of whom we possess a photograph, and their stature was certainly far superior to that ordinarily ascribed to the Kamchadales. On the other hand, their habitations were distinctly Kamchadale, and bore no resemblance either to those of the tent-dwelling Chukchi or to the [296] conical skin-covered huts of the Koriaks as described by Langsdorf, yet their dress was that which is said to be distinctive of the latter people. If the story of their having crossed over to the island from the mainland be true, they may be a party of Chukchis, or Koriaks, who, having wandered down from the bare northern tundra to a region where trees exist and wood is procurable, have adopted the Kamchadale form of dwelling. The absence of women from the main village would support this supposition, for if we remember rightly, the Koriaks are said to keep their women apart."

22:Barrett-Hamilton and Jones--296 [2] N-2 (1897) 1898 Koryak
116, 262, 342, 501

"The balagans were here [Karaginski Island--Analyst] very similar to those of the mainland, and the people also eat fish and berries. We also saw one man eating a cone of the small dwarf pine, which here grows in close-set thickets. The only yurt we could see near this straggling village had a curious entrance to it from the roof, with a door which could be raised or lowered by means of an attached pole. It was exactly like the winter habitations figured in Cook's Third Voyage, but differed from them in not possessing a door at the side for the use of the women. We looked into this yurt, but did not descend the notched pole, which, as in the case of the balagans, formed the only means of ingress. The interior was bare, and there was a puddle in the centre of the floor, which gave it the appearance of not having been recently inhabited—an assumption which gains support from the presence of a hole in the ground for use as a fireplace near one of the balagans, and also from the fact that we saw the natives eating a meal of dried salmon seated on skins on the beach, under the shelter of their upturned bidarra, or skin boat."

greateſt ceremony, and bear every affront. It was never heard 619
that the ſettled *Koreki* did the leaſt injury to any of the 182
wanderers; and this is ſo firmly believed, that our tax-gatherers 578
think themſelves entirely ſafe, when they converſe with thoſe 438
who live in huts, if they are guarded by one of the reindeer
Koreki: which may appear very ſtrange, conſidering that
the ſettled *Koreki* are much their ſuperiors in ſtrength; and
it can only be attributed to that general reſpect which poor
people pay to the rich: for the poverty of the ſettled *Koreki*
is ſo great, that they depend upon the others in a great
meaſure for their cloathing. The rein-deer *Koreki* call the
others their ſlaves, and treat them accordingly; but they behave 609
very differently to the *Tchukotſkoi*, who are ſo terrible to them,
that fifty of the rein-deer *Koreki* dare not ſtand againſt twenty
of theſe; and if it was not for the protection of the Coſſacks
of *Anadir*, the *Tchukotſkoi* would have rooted them out by this
time. As every nation has ſomething commendable, ſo the *Koreki* 157
are more honeſt and induſtrious than the *Kamtſchadales*, and ſeem
to have a greater ſenſe of ſhame.

It is difficult to form an exact account of the numbers and 511
different families of the *Koreki*, but it is thought that all together 342
they are more numerous than the *Kamtſchadales*. They[1] live in 372
ſuch places as abound with moſs for their rein-deer, without regarding 312
the ſcarcity of wood or water: in the winter time they
can uſe ſnow for water, and for firing moſs or graſs, of which
they have plenty every where. Their manner of living, eſpecially
in the winter time, is ſtill more diſagreeable than that of
the *Kamtſchadales*: for being frequently obliged to change their
habitations, the huts which they come into are all frozen; and
when they begin to thaw them by the fires, which are uſually
made of green ſhrubs or graſs, there ariſes a ſmoke, ſo pernicious
to the eyes, that it is enough to blind a perſon entirely
in one day.

1. [i.e., the Reindeer Koryak -- Analyst]

231 Their huts are made much in the ſame manner as thoſe of
264 other wandering people, but leſs than thoſe of the *Calmucks.*
342 In the winter they cover them with raw deer-ſkins, and in the
ſummer with tanned. They have no flooring or ſeparation within their huts; in the middle only are four little ſtakes driven, between which is their hearth. To theſe ſtakes they commonly tie their dogs, which frequently drag the victuals out of the kettles while it is dreſſing; and notwithſtanding their maſters beat them very ſeverely, they generally come in for a ſhare of every piece. A man muſt be very hungry to be able to eat with theſe people. Inſtead of waſhing their kettles or platters they give them to the dogs to lick, and the very fleſh which they tear from the mouths of the dogs they throw again into the kettles without waſhing it.

171 The *Tchukotſkoi* winter huts are much preferable to thoſe of
342 the *Koreki*, being much warmer and more roomy. Several
families live in the ſame hut, all having their proper benches, upon which deer-ſkins are ſpread, whereon they ſit or ſleep. Upon each bench a lamp burns day and night, for which they uſe fiſh-oil and a wick of moſs. They have an opening in the top, which ſerves for a chimney; however they are almoſt as ſmoaky as thoſe of the *Koreki*, but ſo warm, that in the coldeſt
171 places the women ſit naked. The cloaths which they wear are
291 made of rein-deer ſkins, not differing in the leaſt from thoſe
of the *Kamtſchadales*, who purchaſe them from the *Koreki.*
They feed upon the fleſh of the rein-deer, in which they very
233 much abound, ſome of the rich having ten or twenty thouſand;
556 nay, one of the chiefs was ſaid to have one hundred thouſand:
262 but yet they are ſo penurious, that they are ſorry to kill any
574 for their own uſe, ſatisfying themſelves with ſuch as die naturally, or are killed by the wolves. Of this carrion, indeed, they have plenty; and they are not aſhamed to excuſe themſelves from entertaining travellers by telling them that none of their

deer

deer are killed or have died lately.

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4. (cont.)
knew nothing of the Kamchadal. One can explain such a misunderstanding of Steller's remarks as happened to Gerland in part by Steller's antiquated style and in part by the frequently (and even at the place concerned, p. 8) exceeding faulty and incorrect punctuation in this publication of his work. As I have already pointed out at another place (Reis. u. Forsch. im Amur-Lande, Vol. II, p. 762, note 3), Pallas said of it that it "was printed from a rough draft and in the hands of the publisher (J. B. S.) became loaded with the most inexcusable copying and printing errors revealing a great ignorance (Neue Nord. Beytr., Vol. II, p. 255). One will be convinced of the accuracy of this opinion by Pallas on every page while reading Steller's work. For this reason I believe that the apparent difference in these two Koryak terms for the Kamchadal can be traced to merely a printing error. Steller also says that the sedentary Koryak along the Sea of Okhotsk are called "Nũmala akalila," i.e., sitting, resting, by their countrymen who roam with reindeer. Could it be, however, that this "Nũmala," like "Namalau," is also a reference to their subterranean dwellings?

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Some, the sedentary ones, of the Koryak, also a Paleo-Asiatic people, retained the earth yurt to this day, insofar as they have not already adopted Russian customs and hence also Russian dwellings, for example, according to Ditmar (5). /335/ in particular

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5. "Ueber die Koräken und die ihnen sehr nahe verwandten Tschuktschen /On the Koryak and the Chukchee Very Closely Related to Them/" (Bull. de la cl. hist.-phil. de l'Acad. Imp. des sc. de St. Petersb., Vol. XIII, pp. 104, 107, 109; Mél. russes, Vol. III, pp. 8, 12, 16):

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342 [178] [177] the Kamenzen and Parenzen settled around Penshin Bay, as well as the northernmost Pallanzen (in Pusstorezk and Podkagernaja), and the majority of the Olutorzen on the northeast coast of Kamchatka. According to Ditmar, the Koryak earth-yurt is very simple in nature: a pit approximately 2-3 fathoms square, lined and roofed over with wooden logs, and, like the Kamchadal yurt of old, it is entered through the smoke hole (1). According to Maydell, the Koryak earth-yurt also has a side entrance, which leads down into the interior through a narrow, slightly sloping channel, but this is used only once a year, namely, when the owner moves into his yurt in the fall, he first crawls in through this passageway, but then closes it immediately with sealskin stretched over a frame, and the rest of the time only the smoke hole may be used for entering or leaving (2). The nomadic

[174] ooo Koryak, of course, have no earth yurts. Could it be, however, that their ancestors did have such earth yurts? It is generally

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[113] 1. Krascheninnikof ("Opis. zemli Kamchatki." -- Poln. sobr. putesh. i pr., Vol. II, p. 195), Müller ("Geogr. und Verfass. von Kamtschatka /Geography and Condition of Kamchatka/," in the appendix to Steller's Beschreib. von dem Lande Kamtsch., p. 24), Ditmar (op. cit.), Bush (Reindeer, dogs and snow-shoes; a journ. of Siber. travels and explor. made in the years 1865-1867, London, 1871, p. 352), Kennan (Tent life in Siberia and Adventures among the Koraks and oth. tribes in Kamtschatka and North Asia, London, 1871, pp. 153, 178), and others. The latter in particular describes entering or leaving through the smoke hole in the Koryak yurt and all the inconveniences connected with it in a most drastic way.

2. According to an oral communication from G. v. Maydell.

Koryak RY4
Chukchee RY2

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/335 cont./ It is generally believed that the sedentary Koryak in former times were reindeer nomads and only after the loss of their herds settled along the seacoast in order to live on hunting and fishing -- a change that has to some extent also taken place and is still taking place among the Chukchee (3). But between the sedentary or coastal Chukchee

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3. Kraschenìnnikof (op. cit., Vol. II, p. 204) thought that the sedentary Koryak had formerly been reindeer nomads. Erman (Reise um die Erde /Journey around the World/ Part 1, "Histor. Bericht. /Historical Information/," Vol. II, Berlin, 1838, p. 423, note), Ditmar (Bull., etc., op. cit., pp. 103, 127; Mél., op. cit., pp. 7, 36), and Kennan (op. cit., p. 159) express themselves similarly. According to Ditmar, this impoverishment took place a long time ago, as legend has it, during the battles with the Chukchee. Ssarytschof /Sarychev/ (Putesh. po Sievero-vost. chasti Sibiri, Ledov. moriu i Vostochn. Ok. /Travels in the North-eastern Parts of Siberia and the Arctic and Eastern (Pacific) Oceans/, Pt. II, p. 105) thought the same about the Chukchee, but confused the sedentary Chukchee with the Namollo. There is no doubt but that the true coastal Chukchee arose and are still arising from nomads of the same tribe who have lost their reindeer, as is stated by Wrangell /Vrangel'/ (Put. po siev. ber. Sib. i po Ledov. moriu /A Voyage along the North Coast of Siberia and through the Arctic Ocean/, Pt. II, p. 335), Ditmar (loc. cit.) and others.

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and the sedentary Koryak there is the great difference that the latter are in fact sedentary and have permanent winter and summer houses, while the former, even after the loss of their reindeer and after their settling down along the seacoast, have

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342 retained a seminomadic life and accordingly do not build permanent dwellings or earth yurts, but live in their transportable tents
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361 as before (4). The former seems to me to be a traditional, more

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[113] 4. Wrangell (Putesh., etc., Part II, p. 336). Nordenskjöld (Die Umsegel. Asiens und Europas auf der Vega /The Circumnavigation of Asia and Europe on the Vega/, German transl., Leipzig, 1882, Vol. II, p. 82). In the latter work one also finds an illustration of a tent of the coastal or sedentary Chukchee (Vol. I, p. 394), from a photograph by L. Palander). There is also frequent mention in it of the number and nature of the various tents in the villages visited by the members of the Vega Expedition during their winter travels, as well as of the change of dwelling of the coastal Chukchee, sometimes taking place in winter (for instance, Vol. I, p. 443, and elsewhere). Likewise in Nordqvist (see Petermann's Geogr. Mittheil., 1881, p. 42).

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[101] or less original /336/ way of life, the latter only a later, sometimes merely temporary, change backward. In my opinion, therefore, one should conceive of the change in the way of life of these peoples in reverse fashion: like the sedentary Koryak of today, the ancestors of the now nomadic Koryak and likewise the Chukchee, tribally related to them and differing from them only dialectally (1), formerly had permanent dwelling sites, and to be

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113 1. Steller (op. cit., p. 8, note a) and Kraschenínnikof (op. cit., Vol. II, p. 197) pointed out the close relationship between the two peoples, which was later confirmed several times, for instance, by Ssarytschof (Putesh. kap. Billingsa chrez" Chukotskuiu zemliu, izvl. iz" razn. zhurn. /Captain

Koryak RY4
Chukchee RY2

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/336 cont./

1. (cont.)
Billings' Journey across Chukchee Land, Taken from Various Magazines/, St. Petersburg, 1811, p. 67, footnote), Lütke /Litke/ (Voyage autour du monde, sur la corv. Le Seniavine, dans les ann. 1826-1829 /Voyage around the World on the Corvette "Le Seniavine" in 1826-1829/," Partie hist. /Historical Section/," Vol. II, Paris, 1835, p. 262; the same in Erman's Archiv für wiss. Kunde von Russland, Vol. III, 1843, p. 449), and others.

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sure just such earth-yurts, until they became acquainted with and adopted from their neighbors, presumably the Tungus pressing in upon them, the domesticated reindeer, a domestic animal still foreign to the Paleo-Asiatic peoples; as soon as this happened, they had to give up their sedentary way of life and take up a nomadic life, along with which, of course, they were forced to exchange their fixed earth-yurt for a transportable tent. And it is completely in harmony with this when Wrangell (2), in characterizing

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2. Op. cit., p. 332.

the Chukchee, says that in spite of their nomadic life, they have many more sedentary traits in their whole system than any other nomadic people: only an insufficiency of pasturage and a lack of fodder for their reindeer can force them to leave a place; their inclination toward a sedentary way of life is further shown by the fact that they lay in supplies and are thrifty, indeed even niggardly -- clearly traits which the nomadic peoples lack entirely; indeed, even their clothing, the wide, clumsy fur-shirt and the long fur trousers, are more suitable for a sedentary way of life (3).

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3. Wrangell particularly emphasizes these pecularities of the Chukchee in contrast to the Tungus, these special nomads concerning whom

Chukchee RY2
Koryak RY4

C /336 cont./

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3. (cont.)
Adam Brandt (Neuverm. Beschreib. seiner gross. Chines. Reise, welche er anno 1692 von Moscau aus über Gross-Ustiga, Siberien, Dauren und die grosse Tartarey bis in Chinam und von da wieder zurück nach Moscau innerhalb 3 Jahren vollbracht /Revised description of his great China Trip, which he completed in three years, from Moscow in 1692, over Great Ustiga, Siberia, Dauria, and Great Tartary as far as China, and from there back to Moscow again/, 3rd ed., Lübeck, 1734, p. 99) cites a characteristic trait in this connection, that they know no other curse than: "May you live among the Russians, may you till the soil!"

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If this is so, however, if formerly all the Koryak and Chukchee had permanent dwelling sites, earth yurts, then the remains and traces of them must be found to this day in the undisturbed, usually frozen soil of their homeland, particularly in the case of the earth yurts of the Chukchee, for the Koryak in part, as is known, still have such dwellings today, or traces of this must have been preserved in the legends and traditions of these peoples. Both are in fact the case -- but up to now it has been interpreted differently. Almost all the travelers in the Chukchee region mention the remains of ancient earth-yurts present there, in which the woodwork is often replaced by whole ribs. According to Wrangell they occur along the coast of the Arctic Ocean in the whole stretch between the Bering Strait and Cape Schelagskij (4).

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4. Vrangel', Putesh., etc., Part II, pp. 295-333.

In this stretch, at Cape Irkaipij (North Cape) and at other places, the Vega Expedition, too, found them: some of them were opened up and old stone and bone tools were brought to light from them; sometimes one saw these old dwelling places used by the present-day Chukchee /337/ as fat vaults (1). Ssarytschof found such

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Chukchee RY2
Koryak RY4

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1. Nordenskjöld, Die Umsegelung Asiens u. Europas auf der Vega. Authorized German edition. Vol. I, Leipzig, 1882, pp. 403-406, 456, etc. One also finds there an illustration of the remains of such an old hut, from a drawing by Nordqvist, and several tools found in it.

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Ssarytschof found such remains even farther to the west, near Baranof Rock (2). They

2. Sarychev", Putesh. po Sieverovost. chasti Sibiri, Ledov. moriu i Vost. okeanu, Part II, pp. 95, 96.

are ascribed to the Onkilon. But what people were they? Opinions differ as to that. Wrangell thought that the Onkilon, who, according to legend, were formerly distributed up to Cape Schelagskij, were the same Eskimo who even today dwell in quite similar earth yurts along the Asiatic coast of the Bering Strait and the Bering Sea, that is, the Namollo or Juit (3). Nordenskjöld designates them

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3. There is mention above (p. 251, note 1 /untranslated/) of this view of Wrangell's concerning the former distribution of the Asiatic Eskimo -- a view which I at present, however, no longer share, as one will see from the following.

merely as a people driven from their sites on the coast of the Polar Sea by the Chukchee, and who, according to legend, moved to some islands far out in the Arctic Ocean. But could it not be that the Onkilon were the ancestors of the Chukchee at the time when they still, like the Koryak along Penshinsk Bay and the Bering Sea, lived in permanent earth yurts along the Arctic Ocean? The following reasons seem to me to argue in favor of this.